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FACTORS INFLUENCING CHILD-CAREGIVER INTERACTION

BY

DARRYL LAWRENCE GRAMS

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Factors Influencing Child-Caregiver Interaction submitted by Darryl L. Grams in partial fulfillment of the requirements for the degree of Master of Education.

DEDICATION

To Sandi, Nathan, Caleb and Jonathan I owe the impetus and stimulation to continue this work.

"What mean you fellow citizens that you turn every stone to scrape wealth together and take so little care of your children to whom you must one day relinquish all."

Socrates

ABSTRACT

The relationship between formal training of the daycare worker and interaction patterns between the daycare worker and the child was investigated. Interaction patterns at early ages are felt to be significant predictors of later child competencies. The results of this investigation suggest that these patterns are not necessarily present to a different degree between dyads which involve trained staff as compared to dyads without trained staff. However, the child's age contributed more to the observed variance in interaction scores than staff training. Older children scored higher. In addition, the caregivers' age, experience, and income were found to have a positive relationship with interaction scores. Underlying each of these tenative findings is the relatively low but statistically significant correlation between separate trials for each caregiver. This low correlation suggests that either the instrument or the caregivers were not reliable across trials and thus the results are less conclusive.

The sample consisted of forty child-caregiver pairs. Subjects included two daycare workers from each of 20 licensed group daycare centres. The centres were randomly selected from all the daycares listed in the telephone directory of a large city. A brief questionnaire was used to gather information on personal characteristics of the

workers. Twenty-one of the workers had completed at least six months of formal training in childcare. The training period was typically two years or less through the Early Child Education and Development Diploma program at a community college. Nineteen of the workers had no formal training courses. The children chosen as the other half of each dyad attended full time at the daycares and were between 19-36 months of age. The NCATS (Nursing Child Assessment Teaching Scale, Barnard, 1978) was used to score the types, frequency and richness of child-caregiver interaction patterns.

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CHAPTER I

INTRODUCTION

BACKGROUND

Childcare, or alternate care, is non-parental care given to children and includes group daycare, in-home care and self-care. Non-parental care of children is not a novel idea. In tribal societies the whole clan had the responsibility for childcare. The immediate and extended family, particularly, were responsible for acculturization and care of the young child. The first formal daycare in North America appeared during the mid-nineteenth century. While some of these centres had similar objectives to today's daycares, others were merely a response to the employment of women in factory settings (Cooper cited in Hollis, p. 6; Fowler cited in Hollis, 1981, p. 6). During the Second World War, daycares were set up under federal initiative for the women recruited to staff the factories. These centres were regarded as an unavoidable necessity to facilitate the war effort (Hollis, 1981).

Twenty years ago, few individuals were interested in the effects of alternate care on children. Daycare was not perceived as belonging within the "legitimate province of child development" (Caldwell & Freyer, 1982). Therefore, those few researchers who were interested did not receive adequate funding to support their research because the need for daycare was perceived as a problem of

low-income parents who had to work in order to support their families (Spodek, 1982). Today, however, daycare use has extended to middle and upper-income families who want information about its effects. Parents and society as a whole are now demanding more care and are asking questions about the costs and benefits of alternative care. Several queries surround this issue: Who should benefit from childcare? What are the immediate effects on the children? What kinds of alternative care should public policy support? How will this affect children in years to come?

The federal government's latest forays into the study of childcare have resulted in such documents as the Royal Commission on the Status of Women Report (Information Canada, 1970); Report of the Task Force on Child Care (Cooke, 1986); Sharing the Responsibility (Martin, 1987) and Caring for Canada's Children, (Mitchell, 1987). These reports show a continued interest in how we raise our children, an interest dating back at least to the time of the Greek philosophers. Although research and advocacy for daycare have continued during the past decade, policy makers have not acted decisively in amending existing policies.

The resultant public policy on daycare appears to show a lower valuing of children by society, since limited resources are directed towards implementation of the recommendations from the government reports.

Alternatively, this lack of policy may be due to conflicting research results, a lack of firm direction, or the trepidation of breaking new ground without sufficient knowledge of the consequences. In short, social changes are imminent, but we hesitate to act due to uncertain costs, both social and economic. The immediate negative results at the daycare centres are low salaries, high turnover, poorly qualified staff and little recognition of the importance of the position of childcare worker (Long, 1984; McNairy, 1984; Ainslie, 1984). These effects have important implications for the child who is in alternate care.

This study will focus on one form of childcare, group daycare, which is provided and perceived differently across cultures. Some contextualization is provided in this chapter, which sets the stage for the study relative to North American society. In North America, legislators and society appear to have responded to the issue of childcare with less urgency and have placed less importance on the quality of care that young children are receiving. The second portion of this chapter focuses on the research in daycare, specifically the past concerns and present level of questioning. Finally, the specific problem of interaction in the child-caregiver dyad is examined. The positive contribution that trained caregivers can make within this dyad and the consequences to the child are addressed.

The Evolution of Questions Surrounding Daycare

The developmental effects (social, emotional and cognitive) of the child's experience in daycare settings has been a research topic of growing interest over the last few years. Because parental care is no longer the modal type of care experienced by the preschool child, concern about the effects of alternate care has increased. The greatest interest has perhaps been generated by the studies that show the importance of early experiences later in life. The research in this area is equivocal, some researchers tending to place more emphasis on the importance of early experiences than others. Good reviews on this topic are provided by Clarke and Clarke (1978), Spodek (1982), and Mussen (1982).

Previous Concerns

The issue of daycare impact has evolved over the last 30 years. During the 60's and 70's the theoretical views of Bowlby (1969), Lorenz (1973), and Spitz (1945) on critical periods and attachment were influential on child care issues. The child in alternate care was felt to be at risk in establishing secure emotional ties to his/her mother. These views were used to support the then current view on the negative impact of daycare, which was often confused with institutional care. The research questions posed at that time were often comparisons between children

raised at home and those subjected to daycare rearing in the areas of the strength and type of attachment the child exhibited towards his/her mother.

The deprivation of children's continuous access to their mothers was considered by several authors to be detrimental to their emotional development and mental health (Bowlby, 1969; Blehar, 1974; Hogan cited in Belsky, 1985). A genuine concern that mothers would lose their importance and significance in the child's emotional experience was expressed. The underlying question was, Should children even be in daycare? Later studies on this topic of attachment described daycare as having no ill effects and in some cases, for some groups of "at risk" children, beneficial effects (Belsky & Steinberg, 1978; Kagan, 1979; Pardeck, Pardeck & Murphy, 1987).

The next phase of research involved broad-scoped studies which looked at attachment, cognitive development, and health issues as well as other outcome variables. Examples of these multivariate outcome studies are the Syracruse Project (Caldwell & Richmond, 1968), and the New York City Infant Day Care Study (Golden & Rosenbluth, 1978). These studies describe the overall effects of daycare as benign.

The more recent studies focused on the process-related variables as well as the outcomes associated with the daycare experience. These studies have a different perspective, perhaps influenced by the

structure of society which now sees less than 40% of children cared for in intact nuclear families at home (Cooke, 1986). We are no longer asking whether children should be in daycare or at home, but rather what the important aspects of daycares are. Researchers are attempting to separate out the components that are important in affecting or accounting for child and, to some extent, family outcomes.

Pence (1985) summarizes this progression of daycare research as a five stage evolution. The first two stages were investigated in the 1960's and attempted to deduce "...whether the long-term, daily separations of young children from their parents would harm the children's development or negatively affect the quality of parent-child attachment" (Pence, 1985). The results of the studies which attempted to answer these concerns indicated that daycare per se was not harming children's development or interfering with their attachment to their parents. In fact, children of low SES showed gains over their peers who did not attend daycare. A third stage commenced in 1973 when centre care was compared to home care arrangements. The question was, Which was better? The next level of evolvement began in 1979 with the National Day Care Study (Ruopp, Travers, Glantz & Coelen, 1979) and started to identify the variations between centres and homes to look at their effects and why they occur. The fifth level is starting to emerge now and asks

how these variables affect their level of change and what process is occurring in the interaction of these variables. Questions about group size, the importance of stability, and how various staffing characteristics affect children and overall centre quality are beginning to emerge.

The results of these later studies have generally indicated that children in high quality daycares, where the research was primarily conducted, show no ill effects or developmental delays in cognitive or social-emotional abilities (Rubenstein & Howes, 1979). In fact, in some areas such as social ability, daycare-reared children show greater competence than their home-reared peers (Belsky, 1985). This finding is not surprising considering their level of exposure to social situations. Other researchers have found similar results (Clarke-Stewart & Gruber, 1984; Howes & Olenick, 1986; Rubenstein & Howes, 1979).

Phillips, McCartney and Scarr (1987) describe research studies that show positive and negative results from daycare experiences. Of particular importance is the Phillips et al. assertion that the various outcomes may result from the variation in daycare quality, the child's introduction to and duration in daycare, and family influences that may see certain families choosing certain types of alternate care. The daycare's influence interacts with these variables to affect the child's behavior.

Current Concerns

The question of daycare quality and how the specific daycare qualities may affect child outcomes is now more refined and focused. All daycare environments are not equal, even though they may be operated under similar regulations and guidelines. The broader question of "Does daycare have negative effects on children?" is now more specifically stated as "What aspects of the daycare experience are more influential in predicting which child developmental outcomes?"

Results of research support the notion that structural variables in the daycare predict the development of the children enrolled there. These variables include but are not limited to regulatable aspects of ratio, group size, caregiver education and training. One example of this type of study is the National Day Care Study (Ruopp et al., 1979). Less information is available on the process variables occuring in this environment that can make a difference in children's lives. The processes focus in on what goes on in the daycare between the dynamic agents, especially between the child and caregiver. The questions are now concerned with the variations within the forms of daycare. How do these specific variables contribute to the child's development? Do the variables act synergistically, additively, or in a compensating manner?

Concerns over Daycare Workers Training

Not all daycare environments provide the same level of care, and only a small minority employ trained workers. Education and training are felt to be important aspects of providing quality care. The ideal caregiver should be warm and loving and should show consistent behaviors (Oyemade & Chargois, 1977). But love is not enough. Sensitivity to the child's needs, responsivity to distress signals, and ability to provide mutually pleasurable interaction are also important. An ideal caregiver is more than just available; interactions should be specific and direct in their intent. Barnard, Hammond, Booth, Bee, Mitchell & Spieker (1987) assert that the antecedents of a child's cognitive competence require a thorough investigation of the child's environment, particularly the specific interaction between the child and significant adults. Bee et al. (1982) state that a child's later competencies are linked to interactions occurring between himself/herself and significant adults. These studies concentrate on the mother as the most significant partner. Daycare workers are now playing an important role and have also become significant adults in the child's life.

Unlike an untrained worker, a trained worker may have greater knowledge and skills, which influence her interactions with the children under her care. These interaction patterns have been shown to be the single most important variable at an early age in predicting child

developmental outcomes (Barnard et al., 1986). Arnett (1986) found that trained workers had more positive childrearing attitudes, increased child development knowledge, and increased level of positive interaction and positive affect towards children. This positive interaction was associated with less aggression and anti-social behavior in children (Arnett, 1986).

Summary

In summary, the research in daycare has seen an evolution. The evolution started with childcare as a general issue and its focus on emotional development. The questions and hypotheses moved more specifically towards daycare vs home care environments. These studies began to look at other child developmental outcomes in addition to attachment. Research is now attempting to answer questions about the specific aspects of the child's experience which are more important in his development.

A number of factors at daycare influence a child's later competencies. They are inter-related; therefore, the environment, the child and their interaction must be studied. This interaction as a process variable can be used to predict later child competencies. Daycare research implies, but does not make a strong rationalization, why certain variables or combinations of variables are more important in predicting child development outcomes. How they exert their influence

independently and synergistically is the next phase of research. ATI studies (attribute-treatment interaction) (McCann & Short, 1982) appear to be important directions to pursue in investigating the interaction of the child and various daycare environments.

What appears, then, is that some fundamental issues need clarification if they are to have an impact on public policy, on parental choice for daycare service and on the daycare profession. What kind and how much training would be appropriate for daycare workers? How will training affect their job performance and job satisfaction? Through what process does training alter the developmental outcomes of the child? Basically, how much variance in children's development is accounted for by the range of regulations and compliance to those regulations after other relevant variables, such as a child's family background, are accounted for? Answers to these and other questions should help determine the important measures of centre quality and why they are important.

Statement of the Problem

From recent studies it is apparent that a consistently important part of child development is the quality of the daycare (Phillips, 1987). One important aspect of quality is the training of the daycare worker. There appear to be more positive outcomes when the child

is cared for by an individual who has specific training in early child care, because training promotes skill development and knowledge of appropriate activities to stimulate children (Kontos, 1986; Ruopp et al., 1979). These enhanced job skills all contribute to a better environment for the child and greater job satisfaction for the worker (Berk, 1985).

This study is designed to investigate whether trained daycare workers interact with preschool children in a more effective manner than untrained workers. Specifically, is the quality of the trained worker's interaction with children in a teaching situation higher than the quality of the untrained worker's interaction?

Interaction

Interaction or transaction between the trained vs the untrained worker and the young child is felt to be as important in predicting child developmental outcomes as is the provision of other aspects of quality care. Interaction style, frequency, and type have been identified as some of the important process dimensions. Kontos (1986) states that "high quality daycare was clearly associated with more positive interactions with adults...<but was> ..... not a factor in the characteristics of peer interactions" (p.3).

This variable interacts with others (child-staff ratio, group size, availability of toys) in a complex

manner. Training for the daycare worker is one of these salient variables which may contribute to better interactions and which then influences child social, emotional, language, and cognitive competencies. However, the trained staff member working in an overcrowded high-ratio centre may have little opportunity or support to utilize her knowledge and training.

Quality of care

Recent studies show that quality of care is important, that the environment surrounding the child makes a difference. There are global measures that assess the quality of care as an overall, general construct. However, that environment within a daycare is proving to be more complex and harder to assess than anticipated. There seems to be a narrow spread or limited variation between most centres which are presently measured globally.

The problem is to define one of these specific areas that contributes to quality and discuss why it is important. What is addressed is not the global construct of quality care but one portion of it, effective interaction. Interaction is one area in which training can have a specific effect, because interaction skills may not be intuitive. Learning of these interaction skills could occur through observational experience, as suggested by Bandura's social learning theory (Bandura, 1977), or

through formal training. These interactions predict later child competencies. Training also affects a number of other aspects of the caregiver's behaviors and internalized feelings such as guidance, redirection, encouragement and communication. (Berk, 1985).

Importance of the Problem

The results of this study will have direct implications for policy and economic decisions regarding the regulatable aspects of daycare. Whether training should be a requirement is one such aspect under question. Since a majority of preschool children are in alternate care, it has an impact on the future societal benefits, allocation of scarce resources, and resulting returns which will be incurred. Available resources, or money, can be directed to those aspects of the child's experience found to be more important in the child's environment. If training can be shown to impact on interaction, which in turn affects child outcomes, then it can be a resource selected for concentrated improvement. Unequivocal findings would assist parents in selecting a daycare and help in choosing enhancement, enrichment, and intervention strategies.

CHAPTER II

CONCURRENT SOCIETAL CHANGES AFFECTING CHILDCARE

Our society and its response to children has helped shape the form and function of daycares. This chapter discusses the societal changes and resultant challenges to childrearing in our cultural milieu. These changes have also shaped the kinds of questions that are being asked about daycare and the responses made by researchers, parents, and policy makers.

Changes in Needs

The requirement for child care is not new, nor is it a phenomenon of this technological society. However, today the need is being met in a very different way then in the past. Previously, parents cared for young children through their own resources. A large nuclear family, an intact marital relationship, and a reliance on the extended family of grandparents and close relatives living under the same roof adequately met childcare requirements in the past. The fabric of today's society has increased the amount of time alternate care is required and the ways in which this need can be met.

Changes in Values

The family of today's western cultures differs

dramatically from the norm of two decades ago. The "baby boomers" are forming most of today's families and are creating new patterns of family make-up. For example, the single-parent family is more common, and the average family has fewer children. However, the most profound change is the emergence of the two-income family, which has resulted in a rise in family income. This shift in demographics has been accompanied by different values and attitudes towards children and their upbringing and needs (Cooke, 1986).

Hollis (1981, p. 2) comments that the struggle for survival coupled with demanding and media-reinforced needs have made it impossible for parents at all SES (socio-economic status) levels to devote the same time to their children. We have, as Baker (1985) states, "an addiction to consumerism." The buzzword of today's child consultants is that "quality time" is important rather than quantity. This attitude helps to assuage the guilt of many parents who do not spend much time with their children. Maynard (1985, pp. 10-11) makes a particularly poignant comment about why these changes in demand for child care and fuller participation of women in the work force have occurred. She states that today's family desires not just to stay afloat but to sail with a certain flair, a style which includes a second car, a large home of their own and even a beach cottage. Inflation, high interest rates, and rising costs keep this boat rocking on

a choppy sea. She continues with a most significant statement: "...constantly rising expectations have made the two income family the norm" (Maynard).

In order to satisfy both personal and socially imposed needs, parents no longer have the time or energy to commit to the child and his/her optimal development exclusively within the home. Other current economic concerns occupy parents' available time and personal resources.

Changes in Women's Societal Role

Parents in today's society have changed in the way they perceive children and deal with them. In particular, the behavior of women has seen dramatic changes due partly to their higher mean level of education and a continual desire to be fulfilled (Clarke-Stewart, 1982, p. 11). They are being challenged by the question: "Am I fulfilling my potential for achievement?" To meet the expectations inherent in this question, women must shift from the traditional role imagery. Schiller (1980) suggests that there is an ambivalent attitude towards women's roles as mothers and workers.

The message received by women at home is that they should occupy themselves with a fulfilling career. The occupation of homemaker or housewife ranks as low as an unskilled parking stall attendant (U.S. Dept. of Labor cited in Clarke-Stewart, 1982). As a result, women feel

guilt if they are not out reaching for and achieving self-fulfillment. The higher the mother's educational attainment, the more likely she is to feel a need for activity beyond her child caring role (Clarke-Stewart, 1982). A "stay-at-home" mother who is bored and resentful may be of less use to her child than one who is fulfilled and stimulated by her employment (Leary & Vermeulen, 1987).

The increased need for daycare is due to the fact that more women are in the labour force. In addition, our society is now more mobile and less likely to have adult family members nearby to assist with childcare. The majority of mothers, some 59% of women with children under age 16, were in the labour force in 1984 (Information Canada, 1986). This figure compares to only 20% of women with children under 14 in 1970. By 1995, the participation rate is expected to rise to 75% (Cooke, 1986; Hofferth & Phillips, 1987). This increase in participation rates has resulted in a concomitant rise in the demand for childcare. According to H. Clifford, (personal communication, Sept. 26, 1987) the demand varies according to the economic conditions of the region: As employment figures go up, so too does the need and the demand for daycare. Areas of depressed economic conditions have far less demand for daycare space than areas of rapid economic expansion and activity.

Changes in Childcare as a Response to these Challenges

The social and economic demands of our culture preclude the family's maintaining its central role in raising children. Parents' prerogative in bringing up children has made way for or been eroded by pressures outside their realm of influence (Clarke-Stewart, 1982). Alternate care for our children is a very visible component of a volatile society in flux. Regardless of whether one views the trend as good or bad, as a phenomenon that can or should be reversed, it is still a reflection of the demographics of today's society. The questions surrounding daycare involve aspects from the political realm as well as theoretical analysis. What is theoretically advisable in the interests of the children may not be politically tenable.

The complexity of our society, which is changing very rapidly, challenges the fabric of our culture. The transformation to the Third Wave or technocratic society, as Toffler (1981) describes it, changes attitudes, values, and the requirements needed to prepare children for their socialization. A child raised exclusively at home may be at a disadvantage compared to his peers in a daycare, because he may not have had the experiences, the exposure, and the socialization processes required for successful participation in the next cultural generation. If a child misses these opportunities at the preschool age, it

becomes increasingly more difficult to remedy resultant problems or provide for missed opportunities later in the child's life. The child and our response to his needs must match the different requirements imposed by change.

Hollis feels that most parents do not "possess the knowledge to minister to the child's developmental needs" (Hollis, 1981, p. 2), because parenting today is far more complex than in the past. Another reason parents are less able to minister to their children is the trend in current attitude. This attitude suggests that parents should not have to make personal sacrifices in their lives for children. We are more self-centered and concerned about our own personal fulfillment (Clarke-Stewart, 1982). Thus, those parents devoted to child development require more time, more knowledge, and a set of values or attitudes that supersedes their own personal needs. These values must accommodate child and parental needs within the entire family network.

Our society is already committed to daycare, if not in philosophy, then in usage. People are using alternate care much more than staying at home with their children (Information Canada, 1986). The question of whether or not children should be in daycare has become obsolete. That query no longer requires an answer, because the daycare phenomenon is not stopable (Snow, 1984). Instead, the form of alternate care and how it affects children need to be addressed. What should comprise the daycare

experience? What are the salient experiences that a child should encounter at daycare? This study takes the view that high quality centres require continued emphasis. Because most preschool children are in alternate care, good daycare is now more than ever before, fundamentally important, almost essential in providing for effective human development.

Daycare may still be viewed by some as "acryptic and corrasive institution (sic)" (Hollis, 1980, p. 3), but it is firmly entrenched. It affects all of us since any major change in one social institution, such as daycare brings about a complex and interlocking set of reactions in the entire system (Grotberg cited in Hollis p. 3). How we deal with child development in the context of daycare affects women's issues, child development, and indeed, our whole social structure.

There is no historical background upon which to judge the merits and ramifications of this move to alternate care. It is the first time that a majority of the nation's children are being raised at least part-time in some form of alternate care (Cooke, 1986). In ten years we may start to see the damage or the positive consequences resulting from extended childcare. The long-term effects may be exacerbated or washed out by other life experiences.

CHAPTER III

DAYCARE AND ITS EFFECTS: REVIEW OF THE LITERATURE

Early experiences affect the child's social, emotional, intellectual, and language development. Within the global entity of daycare, numerous identifiable elements have varying specific and general effects. Some of these are presented in the literature review, which first discusses the developmental effects of daycare and then describes the various qualities of daycare which impact on the child. The review concludes with a focus on staff characteristics - of which interactive behaviors are of major import. Training may be one of these staff characteristics which influences these interactions.

Effects of Daycare

This section summarizes some of the major findings on the effects of daycare on the social, emotional, and cognitive development of infants and children 0-6 years. As well, the effects on the family and society are touched upon. Omitted are those studies discussing the physical development or health of the child; these studies are well reviewed by Haskins & Kotch (1986) and Klein (1986).

Emotional Development

As discussed earlier, the initial questions about daycare centered around the emotional well-being of the child. Attachment theory argued that mother as the primary caregiver was an important aspect of the child's development. This theory was based on the Spitz (1945) studies and on Bowlby's work describing the "affectional tie that a child forms with another individual" (Bowlby, 1969).

Comments by Kagan (1968), White (1981), and Blehar (1974) were critical of daycare because of the negative effect daycare was felt to have on emotional development, specifically attachment to the mother. Continued research found that children at home, compared to daycare reared-children, did not react to their mothers differently before and after separation (Belsky & Steinberg, 1978; Bronfenbrenner, Belsky & Steinberg, 1976). Caldwell, Wright, Honig and Tannenbaum (1970) also found no significant differences along such dimensions as affiliation, happiness, dependency and emotionality. The consensus now appears to be that daycare does not preclude children from developing normal and secure attachments with their mothers (Belsky, 1985). Belsky (1987) goes on to caution that some age groups are more vulnerable, as well as some "at risk" children when placed in alternate care.

Good quality care likely has no negative consequences for the child's emotional attachment to his or her parents (Esbensen, 1985; Ragozin, 1980; Rutter, 1981). What other effects daycare has on a child's ability to make secure attachments as an adult or on the depth of emotional involvements later in life remain to be seen.

Social Development

The results of studies on daycares' effects upon children's social development have been varied. Children in daycare may exhibit more negative behaviors such as aggression and negative interactions both with peers and adults. They are more non-compliant and uncooperative with adults and less impressed by punishment (Finkelstein, 1982; Macrae & Herbert-Jackson, 1976; Rubenstein, Howes & Bogle, 1981; Schwarz, Krolick & Strickland, 1973). On the other hand, daycare children show more social competence and act with more confidence and repertoire of skills when interacting with peers and adults (Clarke-Stewart, 1982; Golden & Rosenbluth, 1978; Heist 1980; Rubenstein & Howes, 1979). Home-reared children show a greater level of tension and agitation than daycare children, as well as greater passivity and less autonomous behavior (Zazzo, cited in Esbensen, 1985). Belsky & Steinberg (1978) also suggest that children who have had full time daycare experience demonstrate greater degrees of interaction and peer orientation.

These effects on social behavior are interpreted differently by the researchers. The finding that children are less dependent on adults and interact more with peers may well be perceived as a negative consequence. Moore (1975) and Rubenstein & Howes (1979), however, feel that this effect represents greater maturity and is positive.

In summary, the effects of daycare on social development are generally positive for variables such as social adaptation and language measures. However, these positive effects do not apply to all daycares. A child's particular development of social skills is related to the quality of early childhood experiences (McCartney, Scarr, Phillips, Grajeck & Schwarz, 1982; Macrae & Hebert-Jackson, 1976).

Good quality centres with good adult-child interactions have positive effects on the child's later performance socially (Schweinhart & Weikart, 1980). This conclusion suggests that further research be directed to the quality of the experience rather than on where it occurs, at home or at the centre.

Intellectual Development

Middle-class children who attend good quality daycare centres appear to neither suffer nor unduly benefit intellectually from the experience (Doyle, 1975; Fowler, 1972; Belsky & Steinberg, 1978). Those from low SES and other high-risk groups show significant gains as measured

by standardized tests at preschool and early elementary ages (Snow, 1983).

Other positive outcomes may occur in the cognitive domain and do not directly affect measurable IQ. For example, lower failure rates and higher proportions of high school graduates were observed in groups which had attended preschool (Schweinhart & Weikart, 1980). Although daycare and preschool are not synonymous, they are similar in programming and the study does imply that daycare could have similar outcomes. Golden and Rosenbluth (1978) suggest that daycare may reduce the frequently occurring phenomenon of declines observed in test scores of high-risk, low SES children. This statement is supported by others such as Ramey and Mills (1977). Berrueto-Clement et al. (1984) cite scholastic performance, perseverance, life-long learning, reduced needs for special education classes, and lower incidence of delinquent behavior as other beneficial outcomes from preschool programs.

Family Effects

Daycare research must look at not only the effects on the child, but the impact on the entire family. The child is part of a family system; what affects him/her affects each member of the family. For example, Pardeck, Pardeck and Murphy (1987) found that as satisfaction with daycare increased, so too did marital and maternal satisfaction.

Good daycare can enhance job satisfaction and productivity and reduce absenteeism (Lero, 1985). It can encourage more positive maternal behaviors towards the child and life in general (Rubenstein, Howes, & Bogle, 1981). Good daycare can reduce the stress on the parents; for the single parent, it can generate social contact and act as a meeting place for parents of similar needs and circumstances. High-quality care may act as a social support and buffer some of the family stress experienced by nearly all families today (Mann & Thornburg, 1987). Low-quality daycares serve as a source of additional stress for the parents using them, (Rubenstein & Howes, 1979).

Summary of the Effects of Daycare

In conclusion, knowledge of the effects of daycare are limited. The overall short-term effects appear generally favorable. However, when the specific sub-populations of children are studied, some groups benefit more than others. Less than favorable results may occur for some children, even within the same centres. In addition, there may well be long-term effects which have not yet been reported. These long term effects may include such indices as ego development, ego resilience, autonomy, depressive symptoms, handling of interpersonal relationships, and later personality development. Serious

questions also arise about creativity, curiosity, and the capacity for independent activity (Maynard, 1985).

Does Quality of Care Matter?

In the previous section it was shown that daycare can have positive and negative affects on the children enrolled there. The following section looks at the continuum of quality and how different levels of centre quality may account for the observed variance in child development. These dimensions of quality in group care have been found difficult to define, assess, and investigate. The link between quality of care and child development outcomes is not definitive.

Effects of Quality Care

Measurable qualities in the daycare are important for the child's development. These qualities or variables help to define quality of care. Howes and Olenick (1986) defined quality of daycare centres on the basis of child-staff ratio (high vs low), training (completion of formal child-related training vs no training), and staff turnovers. The quality of centres was positively correlated with compliance and self-regulation in toddlers. These results were also affected by family variables such as parental involvement with the child and the complexity of family life. A significant statement

was made when the authors suggested that children in low-quality centres may miss the opportunities for developmentally important experiences. They concluded that toddler behavior and caregiver behavior were directly related to the quality of the centre.

Assessing Daycares

Numerous studies have been conducted to identify and assess those aspects of daycare that are important in the child's development. Several assessment instruments are available that evaluate the daycare environment on those dimensions felt to be important (Costea, 1985; Harms & Clifford, 1980; Honig & Lally, 1973; Peterson & Peterson, 1986; National Academy for the Education of Young Children, 1985). As Pence (1985) states, significant variations occur between centres along these identified dimensions. These dimensions include but are not limited to, ratio, group size, centre size, floor space and caregiver training. The sources or qualities which differentiate the centres and their effects on children, parents, and caregivers have only recently begun to be investigated. Complex interactions of variables are now being identified. For example, Peterson & Peterson (1986) examined the effect of centre quality on child-parent relationships and found that higher quality daycare experiences for the child were positively correlated with better child-parent interactions at home.

The variables that have been considered as important in daycare have been identified by several research studies. Some of the major ones include the National Day Care Study (Ruopp, Travers, Glantz & Coelen, 1979), the Bermuda studies by McCartney, Scarr, Phillips Grajeck and Schwarz (1982), and Vandell and Powers (1983). Each of these studies has identified specific elements that can be used to operationalize the definition of a quality centre. These variables have been suggested as having significant impact on caregiver-child interactions and on the child's developmental opportunities. As well, practitioners recognized as experts in the field of daycare have suggested elements that may be important in the daycare (Costea, 1985; Harms & Clifford, 1980; Peterson & Peterson, 1986). These are based on direct experience and related studies in child development, developmental theories, and applied research in early childhood education. The comprehensive daycare study by Ruopp, Travers, Glantz and Coelen (1979) as well as others have helped to identify variables, to set standards, and to place benchmarks for further study and investigation.

The variables within the daycare setting have been grouped by Ruopp et al. (1979) as being either structural ingredients or process variables. Examples of process variables include interactions of children with staff and staff with parents. Structural variables include the more concrete aspects, such as child-staff ratio. It seems

that several of these variables are significant predictors of developmental outcomes for the children attending daycare. These examples include, but are not limited to, group size, training of the caregiver, adult-child ratio, amount of usable floor space, continuity of staff, child-parental involvement, and programming. Although cause and effect have not been established between these variables and child outcomes, the results of this comprehensive and well-designed study are compelling. Subsequent research, with some variation, has supported Ruopp's findings (Cooke, 1986; Honig, 1985; Peterson & Peterson, 1986, Phillips, McCartney & Scarr, 1987). The question of which variables are important is a dynamic one since our views have changed over the years with contributions by such authors as Belsky (1985), Ruopp et al. (1979), and Phillips et al. (1987).

Most authorities set standards or minimum levels for these and other dimensions. The level of service provided is regulated under the assumption that conditions of care do make a difference in the lives of the children and their families. These regulations and the routine inspections by the licensing officers help keep centres above certain minimum levels set to ensure adequate childcare, which will at least not cause harm to the child.

Quality and Developmental Outcomes

The link between quality of care and child developmental outcomes is not explicit. Jacobs (1987) found that all centres included in her study scored quite high on the ECERS (Early Childhood Environment Rating Scale, Harms & Clifford, 1980). An arbitrary cutoff point from the total score was established simply to define poor centres and good ones. This overall level of care may be well above the level which will produce negative and observable short-term effects on the children attending the centre. The range between good and poor centres in Canada may be quite narrow, such that most centres (80%) fall well within the mediocrity level suggested by Bagley (1986) and supported by Belsky, (1982), and Keyserling (1972). It was postulated that the measures used to differentiate high and low quality centres may not be refined enough to show high correlations between quality and child outcomes. Additionally, the minimum level or floor of regulated acceptability may be above that where observable negative effects are readily apparent on most of the short-term studies that have been done to date.

Although many studies show that these quality experiences are shaping the child's development, others have less conclusive findings. Bjorkman, Poteat and Snow (1986) also investigated social interactions of children in daycares of low and high quality. Their results were inconclusive: no definite behavioral differences were

found between children who attended the high-quality centres as opposed to those from a low-quality centre. They attribute this to the possibility that the range of differences on the variables measured did not adequately differentiate the centres. Apparently, the scale used may not have assessed the variables that were important; alternatively, extraneous variables may have clouded the results and when variables were clustered or grouped the differences disappeared. Many centres are rather homogeneous in the variables measured, since they simply strive to meet minimum government standards. When these licensing standards are met, no additional funds or resources are allocated. The range of variability may be rather narrow and once this threshold level of quality is met, the measured variables must be carefully chosen to show developmental effects in the short term. Alternatively, as Howes (1986) suggests, good things go together, and those centres which are high on one of the measured variables are also likely to be high on others. Centres with low ratios are also those which likely have trained staff.

Kontos (1986) also found inconclusive results when researching quality of care and a child's intellectual attainment. Her work points out that additional information is required on defining quality and on determining whether the lack of statistical significance is correlated with a lack of substantive effect on

development. There is also a possibility that a centre must drop below a certain threshold level before it has a differential effect on children's development. Apparently, numerous interactions between the centre and external environmental variables tend to cloud and make the differences more difficult to discern.

Variables that Affect the Quality of Care

Group size. Group size has been identified by Ruopp et al. (1979) as the single most important factor within a daycare. Children in smaller groups were invariably associated with better care overall. Children in smaller groups were more active socially and scored higher on developmental tests. The opportunity to interact and the resultant language facilitation were seen as important aspects of group size.

In the research by Howes and Olenick (1985), group size and the caregiver-child ratio emerged as the most important variables in defining quality. Of these two, the ratio of children to caregivers was more important. In low ratio settings children were observed to talk more and engage in more positive affective behavior. Interestingly, even caregiver behavior was affected by the ratio. The caregivers were seen to offer more hugs, spontaneous talk, and other physical contact. Caregiver behavior was also affected by the physical setting. It appears, then, that the overall level of quality within

the centre impinges on separate qualities such as caregiver and child behavior and child-caregiver interaction (Kaplan & Conn, 1984).

Ratio. Child staff ratio is inextricably tied to group size and often touted as the next most important aspect of daycare quality (Jacobs, 1987). Prior to the Ruopp et al. (1979) study, ratio was long considered the most important aspect of good care. However, the relative importance placed on ratio in the Ruopp study is questioned. This study had been restricted to centres where high staff-child ratios already occurred and there was limited variability. Ratios of 1 to 5 and up to 1 to 10 were present and well within what is recognized as acceptable. With these low ratios, children are more likely to interact with and initiate conversations, engage in fewer solitary activities, and have more constructive, positive activities (Vandell & Powers, 1983; Howes, 1986). Ratio also seems to be more important for younger children (less than 36 months) than older ones (Ruopp et al. 1979; Rutter, 1981).

That group size is important is well established, but its relative importance is not as clear. Additionally, an appropriate group size is not a sufficient criterion upon which to define quality care. Group size and ratio are two variables which are closely linked. Small group size combined with a low ratio allow caregivers to maximize their contact with children. The tone of the centre and

type of behaviors (facilitative vs regimented) caregivers display are also facilitated by these variables (Arnett, 1986).

Staff qualifications. The abilities and qualifications of the staff may determine much of the quality of the program provided for children. Skilled caregivers have been recognized as important to quality care by the NDCS (Ruopp et al. 1979), as well Pence and Canning (1987) state that the caregiver is the "linchpin in the environment" (p. 119). The positive effect of training on quality of environment has been found by Vandell & Powers (1983) and been confirmed by other researchers, including Belsky (1985), Clarke-Stewart and Gruber (1984), and Howes and Olenick (1985). It has been stated that the ideal caregiver is warm, loving, consistent, non-rejecting, sensitive to a child's needs, and appropriately responsive (Oyemade & Chargois, 1977). Weikert (1984) found that other staff characteristics were also important such as good communication skills and attitude towards children, as well as personality characteristics such as energy, friendliness, and an enjoyment of children. These personal qualities combined with in-service, self-development, and upgrading opportunities all contributed to improve the level of care provided by the staff (Berk, 1985; Oymade & Chargois, 1977).

Curriculum Programming. McCartney (1984) has described the positive impact that structured programs can have on intellectual growth, particularly that of disadvantaged children. In comparing open and closed programs, Clarke-Stewart (1980) found that in closed programs (highly adult structured) children have less independence and initiative but score better on intelligence and achievement tests. Open programs characterized by child-centered, discovery models seem to foster inventiveness, independence, and persistence in problem solving. The moderately structured programs produce a balance with gains observed in self-esteem, creativity, and cognition. Wiekert (1984) concluded that a defined program was more important than either its type or content. Ekholm & Hedin (1987) divided centres into present and future-oriented, depending on the amount of direct help and planning that went into the daily activity of the child. Children in future-focused centres took on more responsibility and had more independence.

Physical characteristics. The physical aspects of a centre are more easily defined and assessed than the human elements. Such things as space per child, availability of toys, and the layout of the space have been cited as important (Clarke-Stewart, 1982). Not only should there be a large variety of toys, but they need to be accessible and visible, for example, on low shelves.

In larger centres (over 60 children) an emphasis appears on rules and routines. They are marked by less responsiveness to individual needs and more emphasis on control rather than child-based enjoyment. With respect to space, as the density increases, the acts of aggression increase. Belsky and Jacobs (1984) describe layout as important to allow children an opportunity for privacy.

Parental involvement. Various benefits for the child as well as the entire family have been suggested from parent involvement practices. Parents can act as monitors and evaluators of care, participate as members of a board, and contribute time, money, and supplies. When parents are involved in the program and a continuation of child development, discipline, and philosophy occurs at home, developmental gains are strengthened (Bronfenbrenner, 1977). Snow (1984) concluded that parent involvement was the key to quality care. Centres which had parent involvement were more likely to have superior care.

Summary. It is apparent that conditions such as a small group of children in a low ratio setting and cared for by a trained (ECED diploma, Early Childhood Education and Development) worker have been identified as consistent determinants of quality. These and other variables are important in and of themselves. They also form complex links to other variables, such that the effects are often

synergistic and their individual effects, independent of other variables, are difficult to discern.

Interaction as an Important Staff Characteristic

The Child and the Caregiver as Interactive Partners

Child-caregiver interactions can predict later competencies in the child (Barnard et al., 1987). These interactions, especially at early ages, are seen to be extremely important in later years. Interaction and, in some cases, transaction have been promulgated as the single most important aspect of the child's development.

Sameroff (cited in Barnard, 1987) states that the variables with the most power in predicting later outcomes are measures of the child's environment (cited in Barnard, 1987). The environment should, however, be conducive to each unique child. Thomas and Chess' (1977) landmark work discussed it as "goodness of fit". At times the child may be consonant or in harmony with his/her surroundings. There will be other times or situations when he/she is dissonant with his/her surroundings. If the fit between child behavior and adult expectations is a good one, optimal development will be likely. Children are not the passive recipients of these environmental influences. They themselves act to shape them. The external environment such as home, daycare, or cultural experience does not hold exclusive control over a child's

developmental growth. Within the child, innate intellectual capacity, temperament, and motivation are factors which shape his/her developmental growth through a transactional process with his/her individual environment.

Barnard et al. (1987) cite numerous studies which show a positive correlation between high quality child-adult interactions at early ages and cognitive and linquistic ability, as well as secure attachment to major caregivers at later ages. These studies have focused on the mother, but the suggestion is that both parents or other significant adults may be important as well.

Kagan (1977) stated that early behaviors exhibited by an infant and the parent's reactions to these behaviors were a powerful example of interaction. He referred to this interaction as being similar to a ballet, each partner dancing to the steps of the other. Stearn (1974) and Bakeman and Brown (1980) also refer to a dialogue occurring which Barnard et al. (1987) describes as a "mutually adaptive dance" (p. 3).

Interaction and Development

The specific patterns of the child's development are a consequence of a series of transactions that transpire between the child and the environment, each shaping the other (Bell, 1968). The child influences the adult and is in turn influenced by the adult. Continuous interactions

occur across time and feedback loops are established between the actors of the dyad (Clarke, 1984).

Interactive styles unique to each dyad pair, as well as other intervening variables act to produce significant variability observed in child abilities. Honig (1987) describes family process variables as well as parental expectancies, values, and responsivity as being dynamically related to a child's later achievements. She discussed caregiver styles, attitudes, educational practices, and interaction patterns as being related to child achievements. There is also value in specific curricula designed to increase the awareness of, and responsivity to infant states and signals. The support a child receives from significant caregivers may have a powerful additive effect on these achievements.

Good interactive sequences for the child may not be the sine qua non. Beckwith and Cohen (1987) suggest that being reared in higher social class homes in conjunction with an above average, responsive, mothering experience were both necessary to produce high-scoring, intellectually achieving youngsters. They imply that good interactive patterns are not sufficient to produce high achieving children. The context of the interaction must be accounted for. Barnard et al. (1987) express a contrary view, by stating that interactive quality and child outcomes are not mediated by other background variables. They cite socio-economic status as one

specific variable that did not affect interaction quality and its relation to later social or cognitive outcomes.

Beckwith and Cohen (1987) go on to contend that the relationship within the dyad is more important than the individual abilities of either member. In addition, the ability to maintain responsiveness to each other mattered more than attaining responsiveness at one particular point in time. This ability to maintain responsiveness was relevant to a child's later intellectual performance. In other words, it is the cumulative nature of a child's experiences, not a single episode, that determines later outcomes. Lest we be lulled into complacency, the authors caution that a child's early experiences do not act as an inoculation. Positive, appropriate interactions early in the dyad's shared experience simply act as a stage setting, a portent of a continuing process.

Interaction and Attachment

Vandell & Wilson (1987) suggest that secure attachment behavior and the observed higher competencies with peers may be mediated by a third factor: the infants' interaction experiences with their mothers. Those mothers who show contingent responses to their infant's behaviors likely provide more turn-taking opportunities which foster greater aptitude in turn- taking skills. These skills include when and how to participate in the interaction with respect to appropriate and expected actions at

appropriate times. Concurrent with this increase, "maternal responsiveness may foster an infant's confidence in maternal availability resulting in secure attachments" (Vandell & Wilson, 1987, p. 180). The concomitant observed increase in peer competence may be a result of the secure attachment providing for greater emotional security which then permits the child to venture for longer and more distal child-child interactions. More likely, the mother has provided additional interaction skills and greater confidence in her availability. The authors then allude to further research required in investigating the differences between more and less skilled partners. That is, infants' experiences in turn-taking exchanges with their mothers have a significant impact on interactions with other less-sophisticated social partners. Individual players of the dyad who have less developed interactive abilities contribute to poorer displays of skills from their partners.

Interactive Style

Speckman-Klass (1986) describes three levels of adult involvement in a child's world. The levels vary from stabilizing presence, to facilitative intervention through shared participation. In the first level of stabilizing presence, the adult is not directly involved in the activity; her role is to affirm and modulate the activity. Facilitative intervention refers to the adult who enters

into the activity and then withdraws. The effect is to support, redirect, extend, or clarify the child's experience. Shared participation, the highest level, is a total engrossment in the child's activity such as singing, reading, cooking, or playing games. In each of these, the competent caregiver is always aware of and observing the child's behavior, responses, and verbal replies. Within each of these levels the caregiver can pattern her own interactive behaviors (Speckman-Klass).

Specific interactions of import are referred to by Lytton, Watts and Dunn (1987). These include engaging in both play and conversation, sharing and expanding a child's activities, being responsive to the child's verbal and non-verbal signals, and holding expectations and demands for the child's achievements.

From the work of Brazelton (1973), Barnard et al. (1987), and Bakeman and Brown (1980) it is evident that interactive processes are important. Seemingly innocuous events such as turn-taking and reciprocity are important in developing a positive relationship, bonding of parent to child, and attachment. In short, interaction is a fundamental process variable that underlies many personality, social, cognitive, and emotional elements of a child's human qualities and even the continuing development of caregivers themselves.

Requirements for Quality Interactions

Barnard et al. (1987) identify four important aspects of high-quality interaction. These are suggested as fundamental requirements for positive interactions. Positive interactions seem to be conducive in promoting a child's optimal development.

1. Both partners in the dyad must possess a significant repertoire of behaviors. For the adult, this repertoire includes an ability to read infant cues, a variety of stimulating skills such as language ability, and the ability to delay responding to the infant until the infant signals a readiness to receive stimulation. Interlocking sequences of behavior are not possible without a repertoire of behaviors for each person. If one or the other is deficient, the sequence is broken and less fulfilling.

Changes in interaction patterns have been noted to occur because of a lack of knowledge or education in the adult, as well as depression and major life changes. If the child is unresponsive, the feedback mechanisms necessary to sustain mothering behaviors are severely impaired. Additionally, if the child is providing only limited and unclear cues, the caregiver has trouble interpreting and responding to the infant. The result is less involvement in caring for the child and less satisfying child-caregiver interactions.

2. The responses need to be contingent for an optimal interaction to occur. Both parent and child need to take turns and know when it is appropriate to respond. This timing effect means that the behavior be present and be presented at the right moment. The analogy is a batter who must not only be able to swing well, but swing when the ball passes through the batting box.

3. Richness of the interaction content refers to a broad spectrum of opportunities or, in other words, a variety of experiences. This diversity of experience can be provided through increased time spent with the child, increases in verbal stimulation, the degree of positive affect, as well as the variety of toys presented to the child.

4. Finally, child and adult must adapt over time to each other's changing development. At age one, a child requires and elicits different kinds of responses from significant adults he/she comes in contact with than at age three. An adaptation occurs over the developmental epochs. The interaction can fail if the feedback systems are not being completed in an expected and appropriate way for the developmental abilities of the child.

These four important points are not innate characteristics of parent or child. Most of the social behavior is learned. The significant adult may provide scaffolding opportunities that build a frame work in which the child and adult interact (Ratner & Bruner, 1978;

Hodapp, Goldfield & Bayatzia, 1984). Examples of this are peek-a-boo games in which the child learns simple rule structures, when to hide, what each partner should do, and in what order the events occur. The ability to play rule-governed sequences was learned by the adult through experience or other directive learning modes. It appears then that formal training may be an effective manner to learn some of these interactive skills. Trained workers may then be more competent partners in interactive sequences with young children.

Training and its Influence on Interaction

Trained daycare workers have been suggested as a very beneficial aspect of any daycare program. The benefits of training have been variously listed by numerous authors in the field (Berk, 1985; Katz 1980; Oyemade & Chargois, 1977; Pence & Canning, 1987; Ruopp, Travers, Glantz & Collen, 1979). Exactly how trained workers influence child development is a phenomeon that has received scant attention. As a broader term, perhaps staff characteristics subsume training and training is one characteristic that can influence the interactive sequence.

Staff training is associated with more positive interactions between child and caregiver during free play (Schwarz, cited in Kontos, 1986; Cooke, 1986 pp. 130). Training may also result in greater enrichment,

organization, and personalization of the child's daycare setting. The type of training is important in caring for young children, it should be specific to child development and childhood education (Oyemade & Chargois, 1977). Lero (1985) found that neither formal education per se nor work experience was a significant contributor to caregiver-child interactions or to gains on developmental tests. If, however, the education and training were specific and directly related to child development, differences were noted. However, Berk (1985) found that broad-based higher education as well as specific child related education were important aspects of more effective daycare workers.

Honig (1983) found that child competence at the end of the infancy period was highly related to caregiver interaction. She suggests that caregivers trained in child development, such as Erikson's or Piaget's developmental stage theories, are most likely to show positive interactive behaviors. In a later article (Honig & Wittmer, 1985), she found that trained caregivers responded more often and appropriately to a toddler's bid for help and attention than did untrained workers. However, very few studies of this nature link child-caregiver interaction and training.

Knowledge and ability in interactive sequence can be proposed as one facet important in the effective child care worker. Bakewell and Norman (n.d.) discuss the need

for systems that seek out and define "human qualities intrinsic to good performance for early child care workers". One of the twelve areas identified in their competency training program is to communicate, interact and relate effectively. Pence (1987) suggested that often the measures used to assess daycares miss the "nature and quality of staff-child interaction". He states that these interactions are more dependent upon the psychological aspect of the job of caregiving than upon other measures such as space or toys.

It is difficult to attempt to measure the level of interaction and to monitor its presence. One way to help ensure its presence is to provide better trained staff who work directly with children. Berk (1985) concluded that extended education is one factor that can enhance the quality of adult behaviors towards children. She further discussed the problem of training and how the various components of a training program are difficult to ascertain for their relative importance.

Oyemade and Chargois (1977) discuss personality characteristics which influence and subsume the variable of interaction between caregivers and young children. They list and cite references for the importance of such factors as age, warmth, gratification derived from interaction, emotional maturity, and certain aspects of personal history and experience. How these individual qualities affect the child's development is explained by

Howes (1986) as follows. Caregivers tend to mediate the toddler's contact with his/her immediate environment. This mediation occurs through social games, verbal interaction, and physical contact. When caregivers make appropriate and sensitive responses to the child, he/she is provided with a sense of security, and self-worth is fostered. Adaptive and secure relationships are fostered by caregivers who display qualities such as warmth.

A toddler's sense of security is also dependent on continuity and stability of care. Turnover of staff can have a detrimental effect on a child, and trained staff have a lower turnover rate. So, training has direct and indirect influences on the child and child-caregiver interaction. It is important to the child to have staff who are available and predictable. The child who must frequently go through the cycle of making and breaking attachment relations may eventually decide no longer to try and make relationships, since he continually loses his attachment figure. Caregivers as important attachment figures has been investigated by Farran, Burchinal, Hutaff, and Ramey (1982), and Anderson, Nagle, Roberts, and Smith (1981).

The developmental outcomes of children are a result of or correlate with certain aspects or qualities within the daycare itself. One of these is the type of interactions which are experienced by the child and his/her caregiver. Training of the worker may have an

effect on the types, frequency, and style of these interactions.

An intensive review of the literature has revealed that few studies have empirically investigated the influence of training on interactive behaviors. This study is designed not to improve on existing research but to begin the research into this area. Training has numerous beneficial effects at the daycare. Trained workers have better programs for children and they show greater job commitment and better understanding of child development (Cooke, 1986). They also exhibit more effective behaviors (Berk, 1986). Interactive behaviors are possibly an area where they also show greater facility. Interaction has been shown to be a beneficial aspect in parent-child relationships and linked to positive child outcomes. It should logically have similar consequences for caregiver-child relationships.

Summary of the Literature Review

The research investigating the developmental effects of daycare experience (social, emotional and cognitive) appears to suggest that in the short term the child is not adversely affected if placed in a good quality centre. Thus, once minimal levels of daycare standards are met, the child is likely neither harmed nor unduly benefitted by his/her enrollment in daycare. These developmental effects are affected by the quality of the centre. Centre

quality is dependent on several process and structural variables. Taken as a global construct, this quality of care appears difficult to assess. When variables are grouped or looked at separately, their influence can be more readily ascertained. Some controversy remains as to which of these important variables in the daycare venue has more developmental effect on the child. Their relative importance and direct influence are evasive. A certain minimal level of each variable needs to be present (toys, cleanliness, ratio, group size). After this level is reached, marginal rates of returns may not equal marginal rates of additional input. Staff characteristics, in particular, training, appear to be areas where numerous direct and indirect benefits for the child, staff, and parents are possible. Adult-child interaction has been suggested as a primary correlate with later child competencies. That is, interaction needs to be contingent, change over time, and consist of a broad behavioral repertoire (Barnard et al., 1987). Formal training may be one means of improving the interactive abilities of one member of the child-caregiver dyad. Training may be the place where concentrated effort needs to be spent to enhance child competencies in the short and long term. The relationship between training and interaction is the topic of the present research.

Limiting Features of Previous Research

The research to date has begun to answer some questions about daycare and effects on children, but many gaps remain. We still do not have adequate information on the various forms of daycare and how the daily experience within a daycare affects children. The differences between forms may, however, be less than those experienced between centres (Howes, 1986). Some of the research has been flawed by design methodology, the most notable of which is the research primarily conducted in high quality centres as reported by Arnett, 1986, Belsky and Steinberg, 1978, Keyserling, 1972, and Snow, 1983. These centres do not reflect the modal level of care provided by the majority of centres. A mediocre level typifies the choice available to most parents (Bagley, 1986; Belsky, 1982; Keyserling, 1972). There is, then, a problem of generalizability of the findings. Daycares are not uniform in the level of service or the quality of care provided. They range from simple baby-sitting to actual child development centres, and questions arise about the ecological validity of the studies.

Other limitations noted by Snow (1983) and Arnett (1986) include:

1. Only short term (1-3 years) consequences have been investigated. There has been scant attention to the long-term effects which initially appear benign. These

long-term effects may surface in 15 to 20 years, as noted by Bagley (1986) in specific case histories which he describes. The study by Berreuto-Clement, Schwenhart, Barnett, Epstein, and Weikart (1984) is one of the few that did investigate the long-term effects on children who had attended a high-quality preschool program as an intervention strategy. So, a major question remains regarding the effects of the daycare experience enduring past the preschool and early school years .

2. The experimental designs and psychological tests used to measure effects or observed behaviors may not be representative of the actual behaviors. How can young children's development be adequately assessed and predicted?

3. The studies often compare children in the daycare setting with those cared for at home, as if the home environments were similar and the best place for children to grow up in. Many homes are of dubious quality and differ along dimensions which are difficult to control (C. Bagley, personal communication, Sept. 1987).

4. Parental differences occur between those parents who choose daycare and those who choose to stay at home. A particularly important difference likely exists between parents who choose different levels of quality of care. These parents may differ in their attitude towards children, commitment to planning for the well-being of the child, or perception of maternal role. It could be simply

a measure of the level of stress that some parents are experiencing. Choosing between daycares is an activity that only adds to their stress level and is therefore avoided.

The level of research sophistication in the field, coupled with the current interest in daycare, has begun to address some of these limitations. Continuing research should help to define and improve the daycare environment.

Research Question

The purpose of this study was to focus on training of daycare workers and how it may influence interactive sequences between child and caregiver. The major research question asks whether training of daycare workers has an influence on child-staff interaction at a daycare centre. Does training affect the scores on an objective measure of interactive quality? In attempting to answer the major question two concerns are noted and investigated. First, do other staff variables, such as age or experience, have a positive influence on the adult-child interactions which occur? Secondly, if there are other variables that influence child-caregiver interaction, can the effect of training be separated from the effects of these other variables?

CHAPTER IV

METHOD

In order to investigate the effects of training on child-caregiver interaction a causal comparative study was conducted. The presumed causes are studied after they have had an effect on the dependent variable. No manipulation of these variables occurred. Training was used as the predictor (independent) variable with a total interaction score on the Nursing Child Assessment Teaching Scale (NCATS) used as the criterion (dependent) variable. A causal relationship can not be shown or definitively, since any relationship could be due to a third or other variables. The causal relationship can be explored, but cannot be confirmed.

Design

The original design was to include 20 centres each with a trained and untrained worker. It was expected that the type of centre would have an influence on interactions. Choosing only those centres with a mix would control for several extraneous variables attributed to centre differences. As well, it was expected that toddlers would be divided into primary groups with one caregiver assigned the principal responsibility for five

toddlers. A cross-over design with one child from her familiar group and one from the other caregiver's group was proposed to control for child familiarity.

Unfortunately, only 11 centres satisfied the first criterion. Nine other centres were included to raise the sample size, five of these had only untrained workers and four had only trained workers. The second concern of familiarity of the child to the worker could not be counterbalanced. There were only two centres where the children were grouped; in the remainder, each caregiver assigned to the toddlers cared for all of the toddlers within the centre. Therefore, each caregiver spent a relatively similar amount of time with all the toddlers. Child-caregiver dyads were observed using the NCATS during an assigned, specific task. A comparison was then made between interaction scores of trained workers versus untrained workers.

Two major sources of data were used: a questionnaire of demographic variables (see Appendix A) and a checklist for observations and ratings of the behaviors of the child-caregiver pairs (NCATS, Barnard, 1978). The staff-child pairs were observed within the daycare by an independent observer, blind to the intent of the study.

The protocol for research was approved by the University of Alberta, Department of Educational Psychology, Ethics Review Committee. All parents, caregivers, and centre directors were informed that the

study was related to child-caregiver interactions. Following the completion of the observation session all daycare workers were debriefed on the behaviors that were recorded and questions were answered on the purpose of the study. All parents, staff, and the centre directors were informed that they could withdraw from the study at any time.

The identity of children, staff, and centres was kept confidential. The forms used in the study had code numbers assigned. The list of names and the code numbers were kept locked under the author's control. After data analysis these code lists were destroyed.

Sample

Daycare Selection. Twenty centres were included in the study. They were selected for possible inclusion in the study from the 268 centres listed in the City of Edmonton Yellow Pages telephone directory. Sixty urban daycare centres were identified using a table of random numbers. An introductory letter (see Appendix B) was sent out to explain the purpose of the study and the extent of involvement requested from a centre and its workers. Of the 60 centres contacted by letter and follow-up phone conversation 28 agreed to participate. The refusal rate was 87% (52) with the initial letter. This rate of refusal dropped to 53% (32) after follow-up telephone conversations were made to encourage participation.

The reasons for refusal varied from an imminent closure to expressed fears about the intent of the study and repercussions from the data gathered at their centres. Two centres were unable to be contacted since they had ceased operation sometime between the publication of the phone directory and the attempt to contact them. One centre had recently been involved in two other studies and declined on this one because of concerns that the staff would be overly intruded upon. Two centres agreed to participate but did not satisfy the selection criterion of caring for the toddler age group. Many centres simply did not wish to be bothered and did not elaborate a reason for refusing to participate.

Of the 28 centres which agreed to participate, two of these later refused to continue in the study after an initial questionnaire was administered. One small centre had its enrollment drop so that not enough caregivers working exclusively with toddlers were present. Other dropouts resulted from a change in director (1), closing of a centre (1), and one centre which did not have the signed consent forms from the parents on the day of data collection by the observer. Two centres were held as extras to draw from if time and resources permitted. The twenty centres ultimately involved included both non-profit (4) and for profit (16) which approximated the proportion found in the total population of centres in urban Alberta (70% profit, 30% non-profit) (Information

Canada, 1986). All centres were licensed to operate under provincial legislation.

Staff Selection. Forty caregivers were included in the study. Once the daycare centre owner/operator agreed to participate, the staff were then told about the research and how they would be involved. All of the staff who normally cared for the 19-36 month age group were asked to complete the demographic questionnaire. No staff members refused to participate. Staff turnover was a continual occurrence and in many cases the staff present at the initial contact with the daycare were not the same ones actually included in the study. The time lag between initial contact and actual observation saw several staff leave their positions. This often resulted in the questionnaire being filled out by the staff on the day the co-researcher was present to administer the NCATS. On the basis of the responses to the question, "Where did you receive your training?" they were divided into two groups: trained and untrained workers. A trained worker was defined as a person who had attended for six months or more at a college or career institute in a program specifically related to childcare. Selection of staff in larger centres where more than two staff were working was on a random basis (throw of one die) with the proviso of including one trained and one untrained person from a centre if possible.

Child Selection. The other half of each operating dyad, the child, was chosen on a random procedure from a file at the daycare centre. This file was produced by sending a parent letter out to each of the toddlers in the centre asking for permission to include their child in the study (Appendix C). A child was included only if there was a completed consent form available at the time of observation. Parental participation rates varied according to the daycare director's efforts to insure all parents returned the consent forms. This return rate was not under the author's control and varied from 20-100%.

Only "toddlers", defined as children between the ages of 19-36 months, were included (18 months 15 days through 36 months 14 days). They were approximately evenly divided between males and females, although no attempt was made to equalize the proportion. All children were described by their daycare workers to be within developmental norms for their age. One child was excluded from the study since on the day of observation he was returning for the first time to the centre after an extended hospitalization. Another child was excluded after it became apparent that no reliable data would be collected on that day. He refused to cooperate with either staff member and stay within the environs of the situation for a complete observation.

In some centres, toddlers were divided by primary groups i.e. each caregiver having the principal

responsibility for five toddlers. In those centres, one child from the caregiver's regular group and one from the group attended to by the other caregiver were included in the study.

Observational Unit. A total of 40 daycare workers and 40 children were included, two staff and two children from each centre. The forty daycare workers were each observed twice on the NCATS, once with child A and once with child B in a counterbalanced design. Thus, each worker was observed twice, and each child twice resulting in the 80 separate dyads (40 daycare workers X 2 children for each worker).

Instruments

Nursing Child Assessment Teaching Scale

The quality of interaction was the construct to be assessed. The Nursing Child Assessment Teaching Scale (Barnard et al., 1987) was used to assess the level and type of interaction occurring in each operating dyad. It is individually administered and can be used with children up to 36 months of age. It consists of 73 yes/no items which describe the interaction while the significant adult attempts to teach the child a standardized task. The adult (parent, caregiver, teacher) is required to "teach" the child a task which is at or just above his/her developmental capabilities. Examples of tasks include,

drawing a diagonal line, stacking blocks six high, and stringing beads. It has 6 subscales based on several groups of adaptive behaviors (Barnard et al., 1987). The subscales assess individual behavior of the child, the adult, and their responses to each other, i.e. their interaction. There are four scales associated with adult behaviors; these are sensitivity to cues, response to distress, social-emotional growth fostering, and cognitive growth fostering. Clarity of cues and responsiveness to parent are the two sub-scales which measure child behaviors. Within all of these scales are 24 items which measure the contingency behaviors or interaction, an example is "Did the child vocalize within 5 seconds after the parent's verbalization?"

The NCATS was chosen after a review of numerous instruments. It has excellent validity and reliability and focuses on a particular age group. This scale was normed on a U.S. sample of 2,000 children ranging from 1-53 months old.

Reliability. Each observer trained to use the scale had to achieve an 85% agreement with another observer on at least 5 separate observations. Internal consistency is a second measure of reliability. Cronbach's alpha was computed to obtain the reliability on the subscales which ranged from .20 to .84 with an average of about .60. The total score had an alpha of .83 (Barnard, 1978). A .85 test-retest reliability was observed.

Validity. Construct validity based on these standardization observations showed logical relationships occurring. Marital status and education correlated with both the mothers' and the infants' scores. Dyads with unmarried mothers scored lower. As the child's age increased, the scores increased, suggesting that the infant contributes more to the interchanges as his/her skills develop.

Concurrent validity was demonstrated by administering the Home Observation for Measurement of the Environment (HOME) (Caldwell & Bradley, 1978) which emphasizes both cognitive and social-emotional support in the home environment. Moderate positive correlations were achieved in the .41 to .48 range depending on the age of the sample. Predictive validity using Binet IQ and Bayley scores were also reported as significant.

Demographic questionnaire

The second instrument used was a brief questionnaire designed to collect data on other potentially relevant variables and to establish the two groups of trained and untrained workers (Appendix A). Personal characteristics of the daycare worker such as age, marital status, income, formal education, and years in the field were gathered. This self-report instrument was designed by the author from similar questionnaires used in childcare research (Pence, 1985; Petterson, 1987; Stewart, 1987).

Procedures

After a centre was identified from the random selection procedure, each director was sent a letter detailing the purpose of the study and involvement required by staff, parents, and children. A self-addressed envelope was provided for replies. Follow-up phone calls were placed to urge participation. An initial visit was made to each centre by the author to further explain the study and disclose all elements and instruments to the director. A less complete explanation was made to the staff so that they remained blind to the major hypothesis of the research. The demographic questionnaires were administered to the staff at this time. Parent letters explaining the study and requesting consent to allow the child to participate were left at the centre for distribution by the director to the parents of all the toddlers enrolled there.

The NCATS data were collected by community health nurses who had previously received training in its administration. Each nurse/observer was current on her certification with the NCAST (Nursing Child Assessment Satellite Teaching) centre in Seattle, Washington. These 3 observers were Caucasian, female, and coincidentally, each had a pre-school aged child under 4 years old. Two were on maternity leave, the other was teaching part-time. All had had previous experience in collecting data for a

similar research project using the NCATS or its correlate the NCAFS (Nursing Child Assessment Feeding Scale, Barnard, 1978). The observers were each given the names of 5-8 centres which had been visited by the author and had agreed to participate. They then arranged their own meetings at the daycares so that the centres were minimally inconvenienced. These times occurred in the mornings between 9 and 11:30 a.m. when the children were not scheduled for any naps, field trips or lunch periods.

The staff and child were removed from the active play area into either a separate room in the centre or to an area which provided less distractions and disturbances from the group. The observer explained to the daycare staff what was expected of her. A teaching task, chosen from those suggested in the NCATS manual, was presented by each childcare staff member to each of the two children. While observing the task sequence, the observer recorded verbatim comments from both child and adult. Upon completion of the tasks, score sheets were completed and any significant qualitative observations about the sequence were added reflecting impressions or situations which were significant to the interaction but were not evident in the score obtained.

The data collection phase within the centres occurred during a 6 week period, Sept. through Oct. 1987. The centres were settling down to a routine of new children and new schedules at the start of the new school year.

Early September is traditionally unsettling and every effort was made to ensure that assessments were made after the majority of this disruptive period had passed. The July-August time period was also avoided due to vacation time of staff, low enrollment, and the various vacation times of the children who could not be counted on to be in the centre.

The time required for each administration at the daycare centres varied from three to fourteen minutes. However, approximately two hours were spent in each centre. This time allowed the researcher to build rapport, set up the situation, and then debrief the caregivers on the assessment instrument. The behaviors the observer was looking for and their significance in child-adult interactions were fully explained to the staff. In several centres, staff changes had occurred during the interim period between initial contact and data collection, so the personological data was also collected at this time. Total field time for the 20 centres was approximately 57 hours for the NCATS. An additional 60 hours was spent for the questionnaire and preliminary explanation of the study to each director.

A reliability check was run to check the inter-rater reliability of the 3 observers. Two interactions were assessed by all three observers. These were conducted in a clinic setting. One observer was assigned to conduct the NCATS. The other two viewed the entire sequence

behind a one way mirror. The observations and recordings were simultaneous but independent. After the observations were completed and scored, consensus on the items of disagreement was obtained. It is of particular interest that where disagreement occurred it was due to the physical view presented by the one way mirror. The observer in the room had unrestricted movement and was able to position herself for optimal observations, those behind the mirror had a limited field of vision. In addition, a video tape was used to record and rerun the sequence so that any discrepancies could be checked. The data from these sequences was used only to check inter-rater reliability and not included in further analysis.

Data Analysis

The central question is: Does training raise the interaction score of the dyad as measured by the NCATS? The null hypothesis is that training of the daycare worker makes no difference in scores on the NCATS; Ho: u trn = u untrn. The hypothesis was assessed through the use of exploratory, descriptive, and inferential data analysis. Several *t* tests, both dependent and independent were used to test the first research question. The independent *t* is used to analyze the relationship between two variables when the independent variable has only two values, the

dependent variable is interval in nature and the independent variable is between-subjects. This statistical technique is appropriate since the groups are assumed to have a distribution of scores which approximates a normal distribution and the samples were random and independently selected from their populations. The dependent or paired *t* was used to compare within subject variables. Analysis of variance was used to answer the second concern of other possible causes for the observed variance. The ANOVA is based on similar assumptions as the *t*-test. It is used when there are more than two levels for the independent variable. This second concern was also investigated using correlations and a comparison of means using *t*-tests. A correlation matrix was calculated to look at the relationship between NCATS scores, years of experience and other demographic variables. The $p < .05$ level of probability was used in all hypothesis testing.

CHAPTER IV

RESULTS

The data analysis presented in this chapter begins with a description of the sample and results of the demographic questionnaire. The general results from the NCATS are listed and relationships between these data and the questionnaire measures are reported. Finally some qualitative data are presented which seemed meaningful in the explanation of the quantitative results.

Description of the Sample

Centres

All centres (n=20) were in the metropolitan Edmonton area. They included both for-profit (n=16) and non-profit (n=4) centres. They were located in all areas of the city, inner-city to affluent suburbs. All were medium to large centres, licensed for between 40 and 80 children. Eleven of the centres had both a trained and untrained childcare worker, in five centres both staff were untrained, and 4 centres had both trained staff.

Caregivers

The following results are based upon forty caregivers. Both nominal and interval variables collected from the demographic questionnaire are reported. All

caregivers were currently employed at the centres. They ranged in age from under 20 to over 35 years old with most in the 20-25 year old group. Most caregivers had some college level education, although it was not necessarily related to child development and care. None had completed a university degree. Of those who had formal training in child care (45%), typically a 6 to 24 month training period was taken; most caregivers had worked between one and three years in the childcare field. The married respondents' (70%) spouses were generally in a higher income bracket earning $25,000 or more (37%). The respondents own income level was most typically less than $15,000. These data and other demographic variables are also presented in tables and graphs (See Appendices D and E).

Staff turnover was measured with the variable "months in the center". The mean of 19.7 months and median value of 11.5 months with a maximum of 94 months describe a proxy measure for turnover rate. Many of the staff had other child-related experience such as nanny or preschool aide. The mean level of experience was 4.6 years with a maximum of 16 years and a median of 3.5 years. All the staff with the exception of one were female. All spoke English although five were learning English as a second language and were recent immigrants living in Canada less than five years.

Children

The children (n=40) ranged in age from 20 to 36 months with a mean of 27 (See Appendix D and E). Nineteen of the toddlers were male and 21 were female. All were developmentally within the expected range of abilities as reported by centre staff. They displayed no overt signs of delays on readily observable developmental milestones such as motor skills, expressive or receptive language, or social abilities. Their developmental level was established from discussion with the staff, the daycare director, and the nurse observers' own observations.

These demographic variables for caregivers and children are displayed in Table 1. They are broken down into four groups for ease of comparison. The groups are untrained (uniform), trained (uniform), untrained (mixed), trained (mixed). This table helps to establish their comparability since ideally there should be no pre-existing differences that would account for the observed differences in the dependent variable. In addition, the nominal level variables are comapred in a similar group status in Table 2. The groups are generally comparable, with the untrained workers possessing somewhat less experience and lower educational levels.

Table 1

Means and Standard Deviations for Interval Level Demographic Variables

	Trn mix G1 (n=11)	Untrn mix G2 (n=11)	Untrn G3 (n=10)	Trn G4 (n=8)
Child's age (mnths)	26.3	26.3	26.2	30.4
S.D.	2.8	2.8	1.7	4.2
Work in centre (mnths)	21.0	13.3	15.6	32.0
S.D.	25.1	10.6	32.0	32.3
Work with children (yrs)	5.0	4.3	3.4	6.0
S.D.	4.2	4.1	3.0	3.9

Note:
Trn mix = trained workers in the presence of untrained workers
Untrn mix = untrained workers in the presence of trained workers
Untrn = untrained workers in those centres where only other untrained workers were present
Trn = trained workers in those centres where only other trained workers were present

Table 2

Descriptive Statistics for the Demographic Data

Variable		Frequency			
		Trn mix G1	Untrn mix G2	Untrn G3	Trn G4
Highest Ed Level	some high schl	0	3	2	0
	high schl grad	1	6	6	0
	some college	4	2	1	3
	college grad	6	0	1	5
	Total	11	11	10	8
Formal Training	no training	0	11	10	0
	community clge	11	0	0	8
	Total	11	11	10	8
Plan to continue to give care	1-2 years	2	1	1	0
	3-4 years	2	7	2	5
	>then 4 yrs	7	3	7	3
	Total	11	11	10	8
Length of Training Period	none	0	11	10	0
	<6 months	1	0	0	0
	6-12 months	4	0	0	4
	13-24 months	5	0	0	3
	>24 months	1	0	0	1
	Total	11	11	10	8
Marital status	Married	7	9	7	5
	Unmarried	4	2	3	3
	Total	11	11	10	8

Table 2 (cont)

Variable		Frequency			
		Trn mix G1	Untrn mix G2	Untrn G3	Trn G4
Spouses Gross Income	no spouse	4	2	3	3
	less than $5000	0	1	0	0
	5,000-8,9999	0	2	0	1
	9,000-14,999	0	1	0	0
	15,000-19,999	1	1	1	0
	20,000-24,999	0	1	0	0
	25,000-29,000	2	2	2	2
	more than 30,000	4	1	4	2
	Total	11	11	10	8
Own Income Level	less than 5,000	1	1	1	0
	5,000-8999	2	3	2	0
	9,000-14,999	7	7	7	5
	15,000-19,999	1	0	0	3
	more than 20,000				
	Total	11	11	10	8
Age of caregiver	<20	0	2	2	0
	20-25	5	5	3	5
	26-30	1	2	2	1
	31-35	2	0	2	1
	35+	3	2	1	1
	Total	11	11	10	8
Length of time Working in the Daycare field	<1 year	3	3	5	2
	1-3 years	5	7	2	3
	4-5 years	0	1	1	1
	>5 years	3	0	2	2
	Total	11	11	10	8
Children of their Own	yes	6	3	3	3
	no	5	8	7	5
	Total	11	11	10	8

Nursing Child Assessment Teaching Scale

The means, medians, standard deviations and ranges of the total cases (n=80) of the NCATS scores are shown in Table 3. Scores are well within the range of average to above average interaction scores as described by Barnard (1978).

Reliability

Inter-rater reliability was assessed with two separate child-caregiver interactive sequences. All three observers simultaneously scored each of two separate interactions. The scores of the observer who was present in the room with the parent-child pair was used as the criterion against which the other two observer' scores were compared. The reliability was calculated using the Percentage of Agreement Among Raters Program (DERS, Division of Educational Research, 1979 statistical program). This program was used to calculate the percent agreement among the three raters for all 73 items of the NCATS scale. The separate subscale analyses were calculated by hand. The results of these analyses are reported in Table 4. The 87.3% agreement for the total scale is above the minimum of 85% set by Barnard (1978) for an accepted degree of concordance between each pair of observers.

Table 3

NCATS scores for total sample (n=80)

Variable	Mean	Median	Std Dev	Min	Max
Sensitivity to cues	10.4	10.0	.7	8	11
Response to distress	10.3	11.0	1.5	4	11
Social-emotional growth fostering	8.5	9.0	2.1	3	17
Cognitive growth fostering	13.3	14.0	2.0	7	17
Clarity of cues	7.9	8.0	1.2	5	10
Responsiveness to parents	7.8	8.0	2.9	0	13
NCATS Total Scores	58.1	59.0	6.0	42	68

Table 4

Reliability Results

Percent Agreement between Observers

Obs. pairs	% Agree
1 X 2	86.9
1 X 3	91.8
2 X 3	89.7

Percent Agreement for six subscales and total score

	% Agree
Sensitivity to cues	95
Response to distress	100
Social-emotional growth	86
Cognitive growth	77
Clarity of cues	85
Responsiveness to parent	81
Total all 73 items	87.3

Since each caregiver administered the NCATS to two children, an intra-rater reliability check was computed. This was the correlation between Trial 1 and Trial 2 for each caregiver. The correlation was .35, a statistically significant result.

The Research Question

"Is there a positive relationship between training of workers and the interactions of caregiver-child within the daycare?" Interaction sequence was measured using the NCATS scale. Scores on the NCATS for trained and untrained workers were compared using the two tailed *t*-test for independent samples.

There was some question about the statistical uniqueness of the scores for each worker observed twice, and about the influence from centre variables. Two approaches were taken, the first approach includes analyses directed at discerning the effect of training without accounting for the contribution from centre variability. Initially, several *t*-tests were performed comparing the means of all the trained workers to all of the untrained workers. The results of these *t*-tests are reported in Table 5. These *t*-test analyses fail to account for the centre differences as discussed in the original design and are therefore reported for comparative purposes only.

Table 5

Comparison of trained and untrained workers NCATS scores (n=40)

Variable*	Average M	SD	t
Sensitivity to cues			
Untrained	10.3	.8	-1.25
Trained	10.5	.5	
Response to Distress			
Untrained	10.0	1.5	-1.3
Trained	10.6	.8	
Social-emot growth fostering			
Untrained	8.3	1.7	-.65
Trained	8.7	1.9	
Cognitive growth fostering			
Untrained	13.2	2.1	-.30
Trained	13.4	1.5	
Clarity of cues			
Untrained	7.6	1.1	-1.9
Trained	8.2	1.0	p=.06
Responsiveness to parent			
Untrained	7.1	2.4	-2.08**
Trained	8.5	1.7	
Total NCATS score			
Untrained	56.6	5.3	-2.09**
Trained	59.7	4.1	

* n for all trials trained=21 untrained=19, df=38
** p<.05, critical value for t=2.02

Two additional procedures were then conducted which allowed for a more critical design and analyses. These subsequent analyses attempted to control for factors such as child variables and centre differences. First the group of centres where both staff were either trained (n=4) or both untrained (n=5) were compared to further explore the question of centre type.

Are the differences in mean NCATS scores affected (positively or negatively) when the daycare workers and children come from dissimilar centres? A t value was calculated to compare the means of the two groups (trained vs untrained) of workers. The t for the total NCATS score was statistically significant (t=-2.72, $p<.05$). The t was based on pooled variance estimates. This indicates that the mean NCATS score (62.1) for trained workers was significantly higher than the mean score (55.9) for untrained workers. Two of the subscales, social emotional growth fostering, and responsiveness to parent also yielded mean differences that were significantly higher for the group of trained workers. The results of the t tests for the combined average of the two trials (child 1, child 2) are displayed in Table 6.

The first question regarding the positive effect of training on interaction scores would appear to be supported by this analysis. Training may have an influence in raising the level of interaction scores in

Table 6

Comparison of NCATS scores

	Trained and untrained workers from uniform centres (n=18) (independent t-test)*			Trained and untrained workers from mixed centres (n=22) (dependent t-test)+		
	Average			Average		
Variable	M	SD	t	M	SD	t
Sensitivity to cues						
Untrained	10.3	.8	-1.08	10.2	.6	-1.15
Trained	10.5	.4		10.5	.7	
Response to Distress						
Untrained	10.5	.8	-.58	9.5	2.0	1.8
Trained	10.7	.6		10.5	1.0	
Social-emot growth fostering						
Untrained	8.0	1.8	-2.41**	8.6	1.7	1.6
Trained	10.0	1.7		7.7	1.6	
Cognitive growth fostering						
Untrained	13.2	2.1	-.58	13.2	2.2	.14
Trained	13.7	1.7		13.1	1.4	
Clarity of cues						
Untrained	7.5	1.1	-1.94	7.8	1.2	.54
Trained	8.4	.7	p=.06	8.2	1.0	
Responsiveness to parent						
Untrained	6.5	2.4	-2.40**	7.7	2.1	-.30
Trained	8.9	1.7		8.2	2.0	
Total NCATS score						
Untrained	55.9	5.5	-2.72**	57.3	5.3	-.40
Trained	62.1	3.7		58.1	3.6	

*n for all trials trained=8, untrained=10, df=16
** p<.05

+n for all trials trained=11 untrained=11, df=10

those centres where workers are all either trained or all untrained.

The second type of analysis used centres where there was a counterbalance design of children and identical work environments for staff, these were the centres (n=11) with a mix of trained and untrained workers. A *t* value was calculated to compare the means of the two groups (trained vs untrained) of workers. The *t* for the total NCATS score was not statistically significant. This indicates that the mean NCATS score (58.1) for trained workers was not significantly higher than the mean score (57.3) for untrained workers. The results of the *t* tests for the combined average of the two trials are displayed in Table 6. When child and staff variables were carefully controlled for in the 11 mixed centres the difference in NCATS scores were non-significant across all 6 subtests and for the total NCATS scores.

At first glance when all staff-child interaction scores were analyzed together it appeared that training made a difference (Table 5). This result appeared to be supported when the second analysis was done using centres of just trained workers compared to centres of just untrained workers (Table 6). However, when the mixed staff condition was analyzed, the results did not support the hypothesis that trained workers have higher interaction scores (Table 6). With this more rigorous design the effect of training appears to be mitigated or

washed out by controlling for centre and child variables. These analyses suggest that centre or child differences may account for the observed significant t values obtained between trained and untrained workers in the previous sets of t tests. The possibility that child variables may account for the observed variance is supported by the significant t test results of Table 6. The subscales of clarity of cues and responsiveness to parents both had higher mean scores for trained workers. These two subscales were ones which measured the child's contribution to the total NCATS score.

Analysis of Other Staff Variables

In answering the first question, a concern arises surrounding the relationship between experience or other staff variables and interaction scores. The other independent demographic variables were analyzed using a one way repeated measures analysis of variance. This analysis tests for the significance of difference between the groups with regards to the means on the NCATS. This analysis is appropriate since the dependent variable is interval in nature, the independent variables are between-subjects, and each has more than two levels. Tables 7 through 9 present the results of the ANOVAs for only those variables with significant differences. Caregivers age, income, experience in the daycare field

Table 7

Repeated Measures Analysis of Variance
for Age of Caregiver

Summary Table

Source	SS	df	MS	F	Sig
Age (A)	569.7	4	142.4	3.3	.02
Error	1483.0	35	42.3		
Score (B)	8.1	1	8.1	.40	.53
A X B	206.2	3	51.6	2.5	.06
Error	708.2	35	20.2		

Mean Scores

1 under 20	52.5
2 20 to 25 years	58.8
3 26 to 30 years	57.8
4 31 to 35 years	61.9
5 over 35 years	57.0

Tukey HSD between groups 1 and 4

Table 8

Repeated Measures Analysis of Variance for Income

Summary Table

Source	SS	df	MS	F	Sig
Income (A)	588.6	3	196.2	5.4	.00
Error	1305.1	36	36.3		
Repeat meas (B)	18.1	1	18.1	.78	.38
A X B	83.4	3	27.8	1.1	.32
Error	842.7	36	23.4		

Mean Scores

1 under $5000	58.5
2 $5 to $8000	53.5
3 $9 to $14,999	58.5
4 $15,000 or more	63.5

Tukey HSD significant difference between groups 2 and 4

Table 9

Repeated Measures Analysis of Variance for Length of time working in the daycare field

Summary Table

Source	SS	df	MS	F	Sig
Time (A)	384.8	3	128.3	3.0	.04
Error	1530.0	36	42.5		
Repeat meas (B)	12.0	1	12.0	.50	.48
A X B	71.0	3	23.7	.9	.41
Error	855.5	36	23.7		

Mean Scores

1 < 1 year	55.0
2 1-3 years	59.1
3 4-5 years	60.5
4 more than 5 years	60.1

Tukey HSD significant difference between groups one and four

and length of time in the present centre all showed statistically significant results.

On the ANOVA comparing the means of the five groups of staff ages, the F was statistically significant ($F=3.3$, df 4, 36, $p< .05$). To make pairwise comparisons a Tukey HSD was performed which indicated that the mean score for the under 20 group was significantly different from the mean of the 31 to 35 group. The older age group scored higher.

On the ANOVA comparing the means of the four groups of incomes, the F was statistically significant ($F=5.4$, df 4, 36, $p< .05$). To make pairwise comparisons a Tukey HSD was performed which indicated that the mean score for the $5,000 to $8,000 group was significantly lower than the mean of the $15,000 group.

For the ANOVA comparing the means of the four levels of experience in the daycare field, the F was statistically significant ($F=3.0$, df 4, 36, $p< .05$). To make pairwise comparisons a Tukey HSD was performed which indicated that the mean score for those with less than 1 year experience was significantly lower than the mean of those with more than five years experience.

The second concern surrounding the major question refers to a disentanglement of the confounds which account for the observed variability of NCATS. The analysis and results provided to the first question would lead one to suspect training may have a positive

influence on NCATS scores across various centres. Other variables need to be ruled out in order to help confirm this explanation. The analyses in the second question pointed to possible alternative explanations. From these results, age, income level, experience, and length of time at the present centre all influence NCATS scores. These variables and all the demographic variables with face validity were selected for a correlation matrix. Pearson product moment correlations were calculated for most of the variables excluding marital status and training. For these two dichotomous variables, point biserial correlations were calculated. The results of these analyses are displayed in Table 10. It appears that age and experience may contribute to or account for observed variance in interaction score that was analyzed using a t-test. It may be that training is not the most plausible cause of the variance. To further investigate this relationship, means were calculated for each of the four groups of caregivers - trained in the mixed centres, trained in the uniform centres, untrained in mixed centres and untrained in uniform centres. The results of these analyses are displayed in Table 1.

A t value was calculated to compare the means of the child's ages between the trained and untrained groups from the uniform centres. The t was statistically significant ($t=-2.83$, $df=16$, $p<.01$). The t was based

Table 10

Correlation Coefficents between Selected Variables

	Train	Plan Care	Ed. level	Train per'd	Marital status	Sps ed	Sps inc	Own inc
Train	1							
Plan to care	.04	1						
Ed. level	.93*	-.02	1					
Train pr'd	.95*	.04	.8*	1				
Marital sts	.18	.02	.12	.13	1			
Spouses ed.	-.05	-.27	-.23	-.12	-.67*	1		
Spouses inc.	.13	-.26	-.07	.06	-.66*	.72*	1	
Own inc.	.37*	-.08	.42	.39*	.13	-.16	-.03	1
Wrks age	.21	-.07	.25	.12	-.04	-.03	.16	.12
Daycare exp	.25	-.17	.14	.26	.30	-.08	-.02	.42*
Centre exp	.33*	-.11	.12	.29	.10	.11	.24	.43*
Exp. child	.26	-.23	.29	.30	.23	-.15	.02	.34*
NCATS trial 1	.29	.21	.18	.20	.01	-.08	.03	.29
NCATS trial 2	.36*	.14	.26	.30	.14	-.01	.09	.35*
Avg NCATS	.32	.21	.27	.31	.09	-.04	.08	.39
Avg child age	.29	.14	.36	.40*	.28	-.27	-.24	.30

	Wrks age	Day care exp	Cntr exp	Exp Chld	NCATS Tr 1	NCATS Tr 2	NCATS Avg
Wrks age	1						
Daycare exp	.28	1					
Centre exp	.21	.74*	1				
Exp. child	.28	.59*	.45*	1			
NCATS trial 1	.26	.28	.25	.22	1		
NCATS trial 2	-.02	.41*	.41*	.19	.35*	1	
Avg NCATS	.14	.38	.40	.25	.80*	.84*	1
Avg child age	-.15	.36	.27	.13	.16	.46*	.39*

* $p<.05$
df=38, $t=\pm 2.02$,

critical r=.32 for $p<.05$, r=.26 for $p<.10$

on pooled variance estimates. This indicates that the mean child age for the group of trained workers in the uniform centre (30.4) was significantly higher than the mean age (26.2) for the group of untrained workers. Through chance, the one group received older children who also scored higher on the NCATS. The t-tests for experience with children and for length of time in the centre were not significant.

Qualitative Results

The observers made some significant comments which are noted below. The cultural difference of South American individuals was stated as a bias. They were raised with different expectations of children and physical proximity to them. The kind of physical space they enjoy and the types of interactions they have been trained to believe are appropriate are not entirely similar to those expected in this culture. The language barrier was mentioned by one as a possible confounding influence, in one case the child had poor English skills so the caregiver spoke both Spanish and English to her. In another case the caregiver had limited English language skills.

Expectations of the caregivers may have an influence; in the case of one child, the caregiver stated that since the child was not very intelligent she would not do very well. This was based on the limited verbal

skills of the child. However the interaction score was above average with no cognitive difficulties displayed, in fact the child completed the demand tasks well above developmental norms.

In direct contrast the next child who had excellent verbal skills was thought to be very bright. The worker stated that this child would probably do quite well and in fact exhibited only average performance on the tasks. These comments reported by the observers may indicate that perceptions, language, and cultural differences may be directly affecting the NCATS scores.

Summary

The original design called for centres where there was both a trained and untrained worker present. It was not possible to include enough centres that satisfied this criterion so other centres with either all trained or all untrained workers were included. The first analysis compared all trained staff with all untrained staff using an indpendent *t*-test. The results appeared to show that training had a positive influence on interaction scores. The more refined analysis which accounts for centre variance using only subjects from the mixed centres does not support the above conclusion. Also, when just those centres with either all trained or all untrained staff were looked at, the child subscale scores on the NCATS appear to account for more of the

observed significant differences than the caregiver subscale scores. The ANOVA results also suggest that other variables such as the caregiver's income or her age and experience have an influence. This is further supported by the positive and statistically significant correlations between these and other variables with the NCATS total score. Finally, when the variables are broken down into four separate groups according to training and centre type, it appears that the child's age accounts for much of the observed variance. The older children scored better and they happened to occur mostly with the group of trained workers from the uniform centres.

DISCUSSION

The results of the data analysis and their implications are discussed in the following section. These are presented in the same format as the questions were posed. Finally, the limitations and directions for future research are discussed.

Question One

The initial analysis of the results indicate that there may be a positive relationship between training and child-caregiver interactions. A more detailed analysis, however, places this conclusion in doubt. A confound, centre effect, is obscuring the unambiguous effect of training. When the staff were divided and analysed according to the type of centre they were drawn from (mixed or uniform) other plausible alternatives come to light. The variance in NCATS scores appears to be due to the effect of centre. Worker-child interaction scores were higher in the centres where both workers were trained than in either of the mixed or paired conditions. This was an anticipated result, trained workers should interact more effectively. However, trained workers in the presence of untrained workers seem to interact less effectively than expected. It was anticipated that trained workers even in the centres where there was a mix,

would score higher, but this did not occur. Trained and untrained workers in the mixed centres had essentially similar NCATS scores. After the other variables are accounted for, it appears that training may not have a positive influence on interactions between child and caregiver. Workers with formal training appear to have not scored any better than their counterparts without training in the same centres.

This study was not able to show that there is a statistically significant difference in interactive sequences involving trained workers versus untrained workers. In the mixed centres, where other possible causes are accounted for, the statistically significant result attributed to training fails to occur. The most obvious conclusion is that trained workers are no better or worse than untrained workers in their interactions with young children. This is counter to professional opinion and to intuitive belief. The absence of statistical significance for the training variable in those centres of mixed staff may be explained in other ways. First, the staff who had training may transmit their knowledge to the untrained staff. Observational learning (Bandura's social learning theory) may have a powerful influence on the learning of appropriate behaviors for staff within the daycare itself. This learning likely requires that appropriate modeling occurs from more experienced or competent staff. A very limited amount of formal training

may be sufficient to lay the groundwork for informal training provided the informal training occurs in environments that provide adequate opportunities to observe and work with master childcare practitioners. Therefore, although a diploma in childcare may be a valuable asset when dealing with children, being in a better centre and able to learn and practice with competent staff may be equally as important.

Second, the centre type seems to have a strong effect such that other aspects of the centre such as group size or the mixture of children in a room affect child-caregiver interactions. Daycares differ along several important dimensions that help define quality of environment. These dimensions are often found in concert. If a centre has a mix of trained and untrained workers it is likely to have positive ratings on other elements of quality care. "Good things tend to hang together" such that the centre effect is stronger than the effect of training which it subsumes. The untrained worker can probably readily pick up the necessary skills and use them in these better centres. Any deficit from the absence of training is quickly overcome or made up by other "intervening" variables within the centre.

Third, the lack of statistical significance may be due to the bias which became evident in selecting centres. Those that agreed were generally more enlightened about child development. They were, in effect, selected from a

population of better centres where the amount of variance to be explained by training may well be reduced. The bias towards better quality environments reduced the real effect of training on the interaction scores. Trained workers may have a significant impact on interaction, this impact is, however, harder to discern in those centres which have been selected from the higher quality ones limiting variability on the dependent variable of NCATS scores.

Fourth, the influence of the observer as a strange third person in the immediate environment may have presented some reactive effect. The comments received from some staff suggest that they were at an optimal level of exemplary behavior while being observed. Since the sequence was usually less than 15 minutes long, it was a time period during which most caregivers could present their most positive interactive behaviors with children. This is a problem in naturalistic observation particularly when the participant is fully aware and conscious of the observation. These accepted optimal behavior patterns may break down under stress, when other persons are absent from the room or only non-judgmental peers are present. In fact, behaviors may be situation specific such that they depend on who is present (director, parent, observer, other staff) which then sets the parameters of acceptable behavior. These limits may be quite broad while in the

company of co-workers and very restricted if parents or daycare inspectors are present.

Fifth, the ways the caregiver treats the child change as the child matures, so the length of time the child has been under the care of this particular caregiver and his/her age may also influence the interaction score. This was supported by the positive correlation between the child's age and NCATS scores. The two individuals become more accustomed to each other and interact better over time. It is further supported by Barnard (1978) who suggests there is a greater contribution of the child to the score as he/she matures.

Upon examination of the correlation between trial 1 and trial 2 it would appear that although statistically significant it is lower than one would like. This correlation is also lower than test restest reliability reported by Barnard on mother-child pairs observed at 4 and 12 months. The low correlation places some question about the reliabilty and even the validity of the results. Does the instrument adequately measure interaction sequences and differentiate between high and low scores over subsequent trials? Low reliabilty would directly affect and lower the correlations between trials.

Finally, there may well be a preselection occurring and only the more competent and capable people who have a genuine interest and ability in childcare apply for and stay in the field. They may already posses a high level

of interactive ability even prior to receiving training or working in a childcare setting. Training may not be as crucial as other qualities such as a experience or a generic ability in relating to people of all ages.

Additional Questions

The repertoire and display of positive interactive behaviors are likely related to other variables besides training. The causal-comparative nature of this research demands that other plausible causes for the observed effect be ruled out. Statistically significant results were reported for income, age, experience, and length of time in a particular centre. These variables have a positive relationship to interaction scores. This was observed from both the ANOVA results and the positive correlations.

Staff with more experience have higher scores, as well as those in the higher income bracket, older age group, and those with a lower turnover rate. Each of these variables has an intuitive link to promoting better interactive sequences. With more experience a caregiver is likely to gain greater acuity in dealing with children. With more adept skills in childcare it is likely that she is attracted to the better paying positions and will remain there for longer periods of employment. This stability has an influence on the scores as well, as indicated by the positive correlation between interaction

scores and turnover rate. Therefore, the closer inspection of the results indicates that training may not be the cause of the higher interaction scores, these variables could also explain the variance.

When trying to rule out other plausible alternatives it becomes difficult to accept training as the presumed cause of the NCATS score differences. The data were split into the four groups of center-training type (trained, untrained, trained in the presence of untrained and untrained in the presence of trained) and the mean of the child's age calculated for each of these groups. This analysis clearly shows that the group of trained workers in the uniform centre condition had the older children, a chance result. These children were the ones who also scored higher on the NCATS. It seems reasonable to conclude that the child's age had more bearing on the NCATS scores than did training.

Barnard (1978) discusses the observed positive correlation of child's age with NCATS, however, it was not anticipated to show up with such a strong relationship in this study which limited the range of the children's ages to 19-36 months. The most definitive conclusion is that the age of the child accounts for most of the observed variance not training. Older children scored higher and these were grouped under the trained workers from the uniform centres.

Although training may not account for the different levels of interactive behavior, it cannot be concluded that the workers came by their abilities innately, the positive interactive behaviors are likely learned in some other manner. The conclusion that training may not be influencing interactive behavior is tempered by the caveat that concern should be centered not just on formal training or experience but rather on what caregivers do while working with children, ie. their interaction. Not all workers were equally capable when dealing with children. The interactive skills are important but these skills can be gained outside of formal learning institutions.

Implications

This study has focused on trying to understand more about the active participants of the daycare setting. By understanding one category of these participants (caregiver) we can better influence the design and delivery of a childcare service. The identification of personal attributes such as interactive ability that are correlated with child development, may help in the selection and further training of daycare workers. The workers who show "good" interactive skills may be better suited to work with young children than those with high course grades. The interaction scores from an instrument such as the NCATS may well complement ability and

achievement tests in selecting or credentialing daycare workers. It may be valuable to assess potential daycare workers prior to their introduction to formal course work or actual employment in the field.

Parents. Mothering and professional child-care require similar skills although the former likely has more emotional involvement. If the learning of appropriate behaviors is important for child care staff, it may also be important to parents. Training of parents could increase the probability of good interactions and allow for more confidence in parent-child activities. Most parents learn their parenting skills through their own childhood experiences or by observing parenting interactions of those around them. Since interactive skills have been shown to be extremely important for preschool child development it would be a wise investment in time to train parents in significant interactive behaviors and how to recognize their occurrence. This would aid them in developing better interactions with their toddlers (Kushner, 1987). The training could involve items such as contingency maintenance and building a large repertoire of appropriate behavior. The repertoire would include such elements as talking to the child in understandable terms, making the child feel that what he/she is doing is interesting, and encouraging the child to explore and interact. The point here is that the

characteristics and skills of a good daycare worker are much the same as those required by a parent in raising children.

Future Parents. Children no longer learn the bulk of their socialization and future parenting skills in their immediate family. Ideally, some of these should be taught in the school or in courses specific to child care such as prenatal or parenting classes. A part of every high school curriculum could be devoted to parenting. Instruction needs to go beyond didactic lecturing and into the lived experience. This can be accomplished by attaching daycares to secondary schools. An older-younger sibling relationship can be formed in a buddy system of preschooler to student. One example of this is a local elementary school which has the grade six students adopt a child in the daycare (which is attached to the school) for a once a week reading program. The older children are paired with a daycare child whom they accompany and read with at the library for an hour or two. A similar program could be developed with secondary school programs. This co-operative venture would allow for increased contact for the young child with older, socially and linguistically competent persons. The association would help train adolescents in skill development and knowledge for later parenting.

Policy Makers. If we continue to choose minimal standards in centres with respect to the personnel, we may not reach the level of providing true developmental child care. The results of this study provide additional information to policy makers in developing regulations which promote staff development for those engaged in childcare. Training may still be an aspect that needs continued funding because of its beneficial outcomes in other areas besides interaction for the provision of care to young children. Hands on experience in the presence of professional practitioners, may give workers opportunities to learn necessary skills for positive interaction. The "do-look-learn" model proposed by some educators may be the preferred method of training daycare personnel. Workers who receive formal child development training may be missing essential fundamental aspects of working with children. Their training and knowledge in Piagetian theory may enhance professionalism but may not enhance the problem solving, empathy or positive elements of interacting with a child. Competency training as an apprentice may be a better method to increase the interactive abilities of daycare workers.

Caregivers. Plato (cited in Honig, 1986) suggested that the best care for infants was by trained surrogate caregivers. Most children are in alternate care and these surrogate parents are in large part raising the

next generation. Those with formal training have a foundation from which the practical skills are then developed (Berk & Berson, 1981). It is felt that increased job satisfaction, higher wages, and a stronger commitment to the field are possible contributors to better quality care for the child. These qualities appear in concert with trained workers.

The direct effect to caregivers of this research was to point out to them the positive elements of their caregiving interactions. The NCATS actually served as an intervention tool with many staff reporting greater awareness of the positive behaviors they were exhibiting when dealing with children. The knowledge regarding aspects of interactive behaviors such as eye contact, physical contact, and calling the child by name can come from training and be further developed by experience in the field. The recognition of these elements enhances the probability of their display when the child-caregiver dyad is interacting. When she is cognizant of the positive aspects of her interaction she is more likely to continue them, and increase the frequency of their occurrence.

Limitations

1. There are confounding features of individual differences of children in such aspects as temperament and language. The easy going child may contribute more to the interactive sequence and staff may have more positive

feelings towards these children while working with them. Those children who are not fluent in English and were spoken to in their native tongue may have found it difficult to understand the demands of the task therefore, communication problems could also have affected the interaction scores.

2. Further confounds are the features of caregiving style and the staff's own expectations. Some caregivers offer more warmth and openness. For others, their expectations of a child's abilities may detract from the interactive sequence. If a child is perceived as less competent the perception may lead to a self-fulfilling prophecy during the observation or even in the long term.

3. The child and his/her caregiver are not consistent in their interactions, they both have good and bad days. Even minute by minute changes in mood occur which can affect the interaction score.

Future Research

1. There is a continuing need to conduct more studies within the modal type of care. The garden variety of care that is found and is available to the majority of parents is where research should be conducted. These are the mediocre centres found overwhelmingly throughout the field. These are found across the traditional demarcation line of profit vs non-profit centres. This study did

attempt to account for the various centre types by a random selection procedure. Bias resulted when only centres of the average to above average genre agreed to be involved in the research.

2. This study was conducted in a group daycare setting, yet only a small percentage of children are cared for in this venue. The family day home system is a more widely used form of alternate care. The interaction patterns are going to be different since the dayhome provider also has other priorities beyond providing care, such as housework. It is these home situations where one is also less likely to find trained caregivers. So although group daycare is a widely used system there are more questions left unanswered within the entire field of child care. A similar study focused on the family day home system would be insightful.

3. A specific aspect within this study shows that the child's age may influence the interaction sequence. Future research should account for this in the design or control for it by selecting or assigning children of equal ages to each caregiver group. Further to the design, since centre type likely has an effect, more consideration must be placed on selecting centres that have similar levels of care.

Summary

Parents, daycare workers, and other preschool "teachers" need a variety of skills and knowledge about interactive behaviors. Armed with this knowledge there is a greater potential that positive developmental outcomes will occur for the young child. Training however, is not a panacea to insure quality care and development of the child. In addition, training in a formal institute does not appear to enhance their interactive skills.

The fabric of society is changing as socialization occurs more in institutions such as daycare, public school, and university and less in the family, it opens society and makes fresh demands on it. These demands from societal change create new problems. Their solutions lie in additional social innovation. One part of this social innovation is our societal response to childcare. Within the daycare venue, the identification of important characteristics of daycare workers are a response of paramount importance.

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Appendix A

Questionnaire

QUESTIONNAIRE

The following questions are designed to collect information on some of the factors which influence daycare workers and their involvement with young children. Your responses are important in relation to the second part of the study when additional data may be gathered during a child-caregiver sequence. The information provided will be strictly confidential and will not released to anyone.

1. Below are listed some reasons why caregivers work in daycare centers. Choose the three most important reasons why you work in the field.

a. I enjoy being with children ____
b. occupies my time ____
c. the money I get from working ____
d. I feel that I am providing an important and essential service. ____
e. I view this kind of work as my profession ____
f. other (specify) ____

2. Below are listed difficulties which caregivers sometimes encounter in offering day care services, check the ones that apply to you.

a. child hard to handle ____
b. demanding, tiring work ____
c. interferes with my family life ____
d. under-paid ____
e. prefer to look after child of another age ____
f. psychological strain ____
g. other ____

3. How long do you plan to continue to give child care?

a. 0-6 months
b. 1-2 years
c. 2-4 years
d. more than 4 years

4. Why will you stop?

_____

5. What is the highest educational level you have reached?

a. grade school
b. some high school
c. high school graduate
d. some college or technical school
e. college graduate
f. university graduate
g. other (specify)

6. What is your experience and/or training in child care?

a. as a parent _____
b. as a caregiver to other children _____
c. reading and/or courses on child development. _____
d. formal training and/or professional experience _____
e. no prior experience with children _____
f. other (specify)

7. If you have formal training specific to child care where did you receive your training?

a) community college
b) university
c) career institute
d) other

8. How much time was involved in your training?

a) less than 6 months
b) 6 to 12 months
c) 12 to 24 months
d) over 24 months

9. Are you married or have you got a partner?

Yes No

10. What is the highest educational level of your partner?

a. grade school
b. some high school
c. high school graduate
d. some college or technical school
e. college graduate
f. university graduate
g. other (specify)

11. What is his occupation?

_____

12. What was your partner's approximate gross income during the past 12 months? (including money received as salary, self-employment earnings, benefits, training allowances, dividends or investment income)?

a. less than $5,000
b. $5,000 to $8,999
c. $9,000 to $14,999
d. $15000 to $19,999
e. $20,000 to $24,000
f. $25,000 to $29,999
g. $30,000 and over

13. What was your approximate gross income during the past 12 months? (including money received as salary, self-employment earnings, benefits, training allowances, dividends or investment income)?

a. less than $5,000
b. $5,000 to $8,999
c. $9,000 to $14,999
d. $15000 to $19,999
e. $20,000 to $24,000
f. $25,000 to $29,999
g. $30,000 and over

14. What is your age?

a. under 20
b. 20-25
c. 26-30
d. 31-35
e. over 35

15. How long have you been working in daycares?

a. less than one year
b. 1-3 years
c. 4-5 years
d over 5 years

16. How long have you been at this centre?

_____

17. How long have you been working with young children?

_____

18. Do you have children of your own?

Yes No

19. If your answer to 17 is yes, are any of them preschoolers?

Yes No

Reference Code _____

Appendix B

Centre Letter

Dear Daycare Operator:

I am a graduate student conducting research in early child development. I am interested in looking at children 18-36 months old, interacting with their peers and caregivers. One source rich in information is the group daycare centre. This setting provides a unique opportunity to be with children and adults learning and playing together. This setting also allows for observations of groups of similar aged children cared for in similar surroundings. This information will help to identify those factors which are important at an early age for later child competencies. Some of these factors could be enhanced both at home and at the centre if it can be shown that they do influence child development.

I am soliciting cooperation from your centre to be included in the study. Approximately 30 minutes is required from each of two caregivers to present two different children with a specific task. Tasks vary somewhat according to the child's age, examples would be to have the child place colored squares in a form board or to place various shaped objects into a container with matching openings. Behaviors are recorded by an independent observer on a checklist designed for the study. A separate room or area partially removed from the normal play area is needed to present the tasks.

An additional 10 minutes is required to gather personal information from the caregiver; this information includes such items as age, length of time in the daycare field, and training. It is collected prior to the child task sequence. Since the setting in which the sequence occurs is also an influence on the child, some additional questions about the centre are included for the director to answer at a later date. An example is, "How many children of this age group are cared for within the centre?" The total time required is expected to be less than 40 minutes for each of the two workers and an additional 30 minutes from the director.

The benefits to you and your centre include:

i) a copy of the results of the study including a review of the literature on child development

ii) participation in a valuable research project

iii) pride in furthering knowledge about child development processes

iv) an interesting and brief distraction for the staff and child away from the daily routine without disrupting any programs or regular activities

v) positive regard from the parents using the centre in knowing that "their" centre was included in a child development project.

Your cooperation in facilitating this research project is essential in order to gain a broad perspective from different centres within an urban area. Neither the centre nor the daycare worker will be identified in the research report nor will any information be released to any individual or group. Anonymity is assured by assigning a code number to each staff and centre.

Most operators will find the study interesting and non-disruptive to their programs. The project has received support from noted child development specialists at the university.

A small token of appreciation for your time to read and to consider this request is included for your centre. Please fill out and return the attached form now. Further information about the study can be obtained from Darryl Grams, 434-9087 (evenings) or Dr. G. Kysela 432-5026.

Thank-you,

Darryl Grams
Dept. of Educational Psychology
6th Floor Ed. North,
University of Alberta,
Edmonton, Alberta,
T6G 2G5

Yes, I would like more information about the study and would consider being included in the research project.

Name of centre_____

Signature of director or operator_____

Phone_____

Appendix C

Parent Letter

Dear Parent:

I am a graduate student conducting research in early child development. I am interested in looking at children 18-36 months old interacting with their peers and caregivers. One source rich in information is the group daycare centre. This setting provides a unique opportunity to be with children and adults learning and playing together. This setting also allows for observations of groups of similar aged children cared for in similar surroundings. This information will help to identify those factors which are important at an early age for later child competencies. Some of these factors could be enhanced both at home and at the centre if it can be shown that they do influence child development.

In this study the child is presented with a specific task to perform such as placing colored squares in a form board or inserting various shaped objects into corresponding openings in a container. The tasks are seen by the child as another enjoyable play opportunity. They are completed with his/her daycare worker while an independent researcher observes and records the interactive behaviors. The entire sequence takes approximately 15 minutes.

Neither the child's name nor any other identifying information is released to any individual or group. Anonymity is assured. Before your child can participate, signed consent is required; please complete the attached form and return it to the centre.

Thank-you,

Darryl Grams
Dept. of Ed. Psych.
Faculty of Grad. Studies

_____ may participate in the research project.
(child's name)

_____
(signature of parent or guardian)

Appendix D

Descriptive Statistics for the Demographic Data

Demographic Statistics

Variable	Value	Freq	Per Cent
Highest Ed Level	some high schl	5	12.5
	high schl grad	13	32.5
	some college	10	25.0
	college grad	12	30.0
Formal Training	no training	21	52.5
	community college	19	47.5
Plan to continue to give care	1-2 years	4	10
	3-4 years	16	40
	more then 4 years	20	50
Length of Training Period	no time training	21	52.5
	less than 6 months	0	0.0
	6-12 months	8	20.0
	13-24 months	9	22.5
	more than 24 months	2	5.0
Marital status	Married	28	70
	Unmarried	12	30
Spouses Gross Income	no spouse	12	30.0
	less than $5000	3	7.5
	5,000-8,9999	1	2.5
	9,000-14,999	2	5.0
	15,000-19,999	3	7.5
	20,000-24,999	4	10.0
	25,000-29,000	7	17.5
	more than 30,000	8	20.0
Own Income Level	less than 5,000	3	7.5
	5,000-8000	7	17.5
	9,000-14,999	26	65.0
	15,000-19,999	4	10.0
	more than 20,000	0	0

Age of caregiver	less than 20	4	10.0
	20-25	18	45.0
	26-30	6	15.0
	31-35	5	12.5
	35+	7	17.5
Length of time Working in the Daycare field	less than 1 year	13	32.5
	1-3 years	17	42.5
	4-5 years	3	7.5
	more than 5 years	7	17.5
Children of their Own	yes	15	37.5
	no	25	62.5

Appendix E

Graphs for Demographic Data

Figure 1

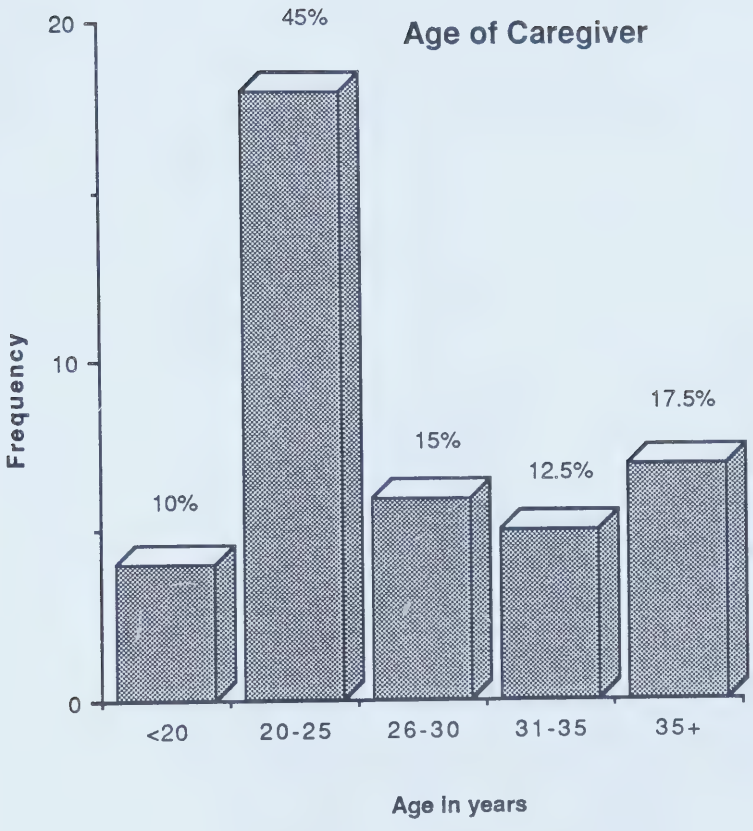

Age of Caregiver
Frequency
20
10
0
45%
10%
15%
12.5%
17.5%
<20
20-25
26-30
31-35
35+
Age in years

Figure 2

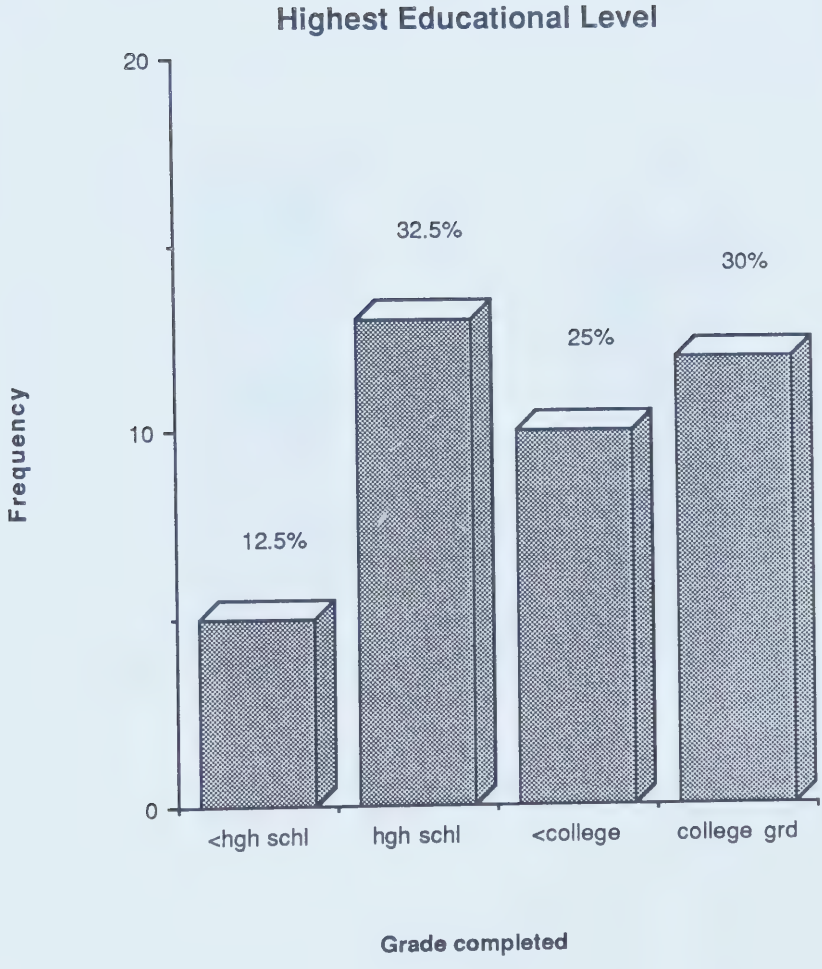

Highest Educational Level
20
10
0
Frequency
12.5%
32.5%
25%
30%
<hgh schl
hgh schl
<college
college grd
Grade completed

Figure 3

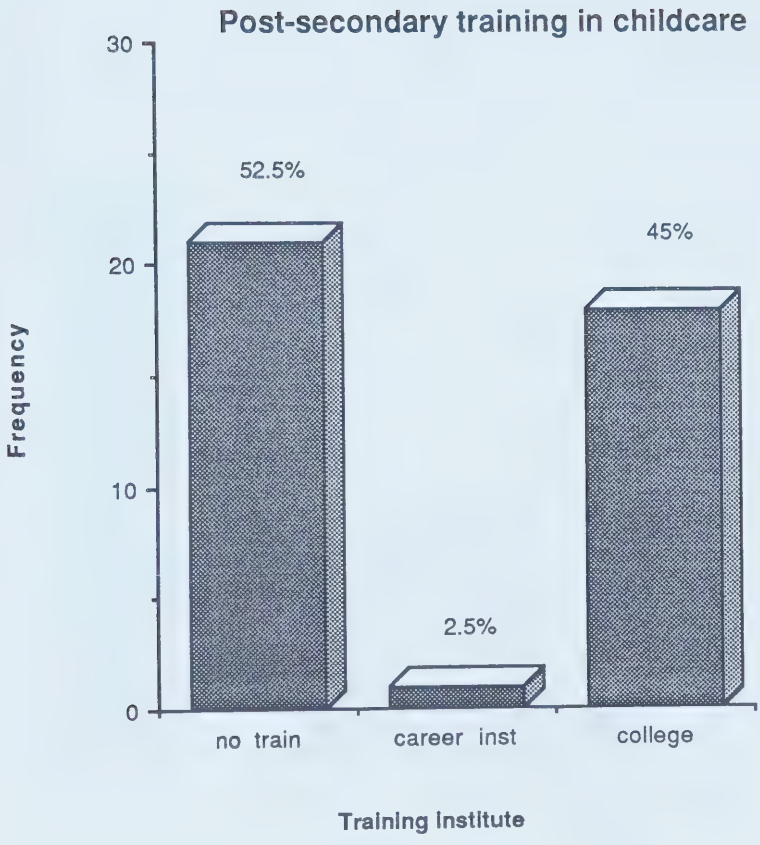

Post-secondary training in childcare
30
20
10
0
Frequency
52.5%
2.5%
45%
no train
career inst
college
Training Institute

Figure 4

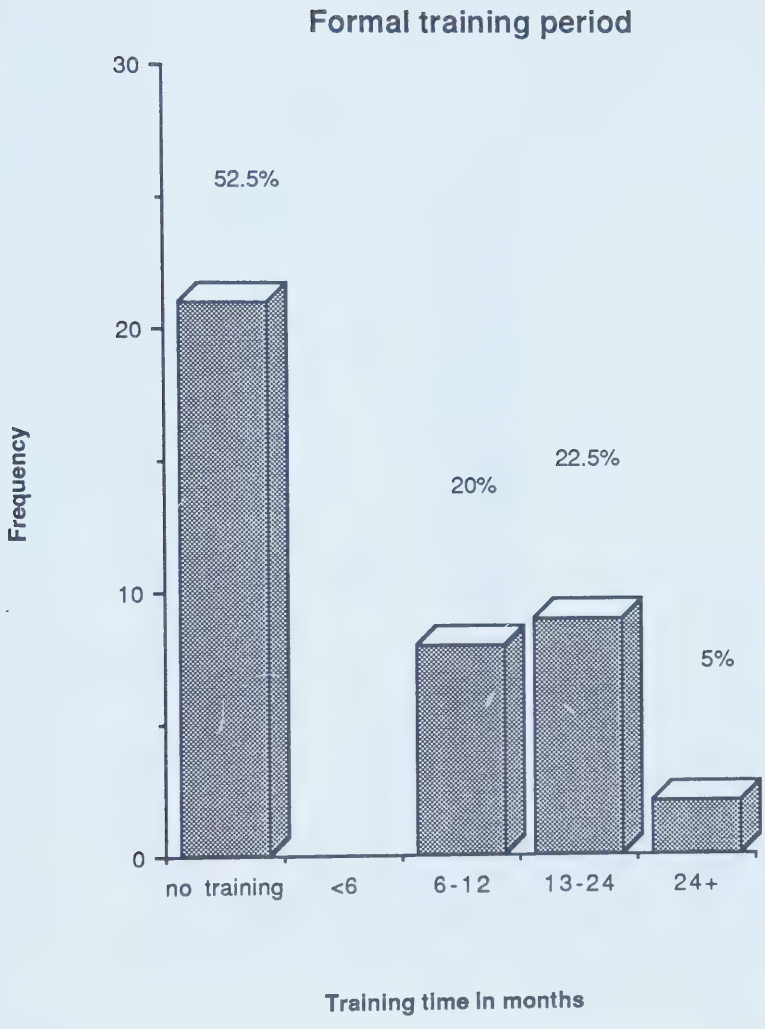

Formal training period
30
20
10
0
Frequency
52.5%
20%
22.5%
5%
no training
<6
6-12
13-24
24+
Training time in months

Figure 5

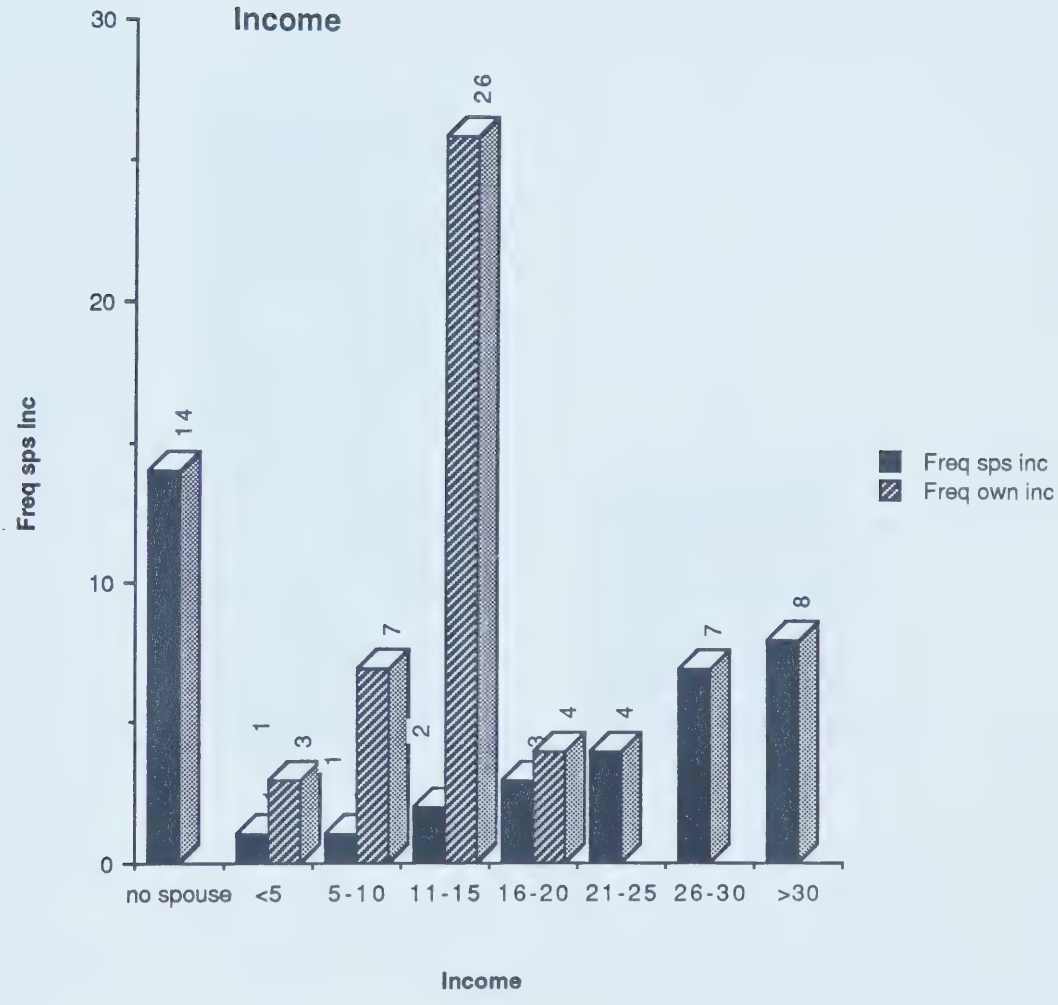

Income
30
20
10
0
Freq sps inc
14
1
3
1
7
2
26
3
4
4
7
8
no spouse
<5
5-10
11-15
16-20
21-25
26-30
>30
Income
Freq sps inc
Freq own inc

Figure 6

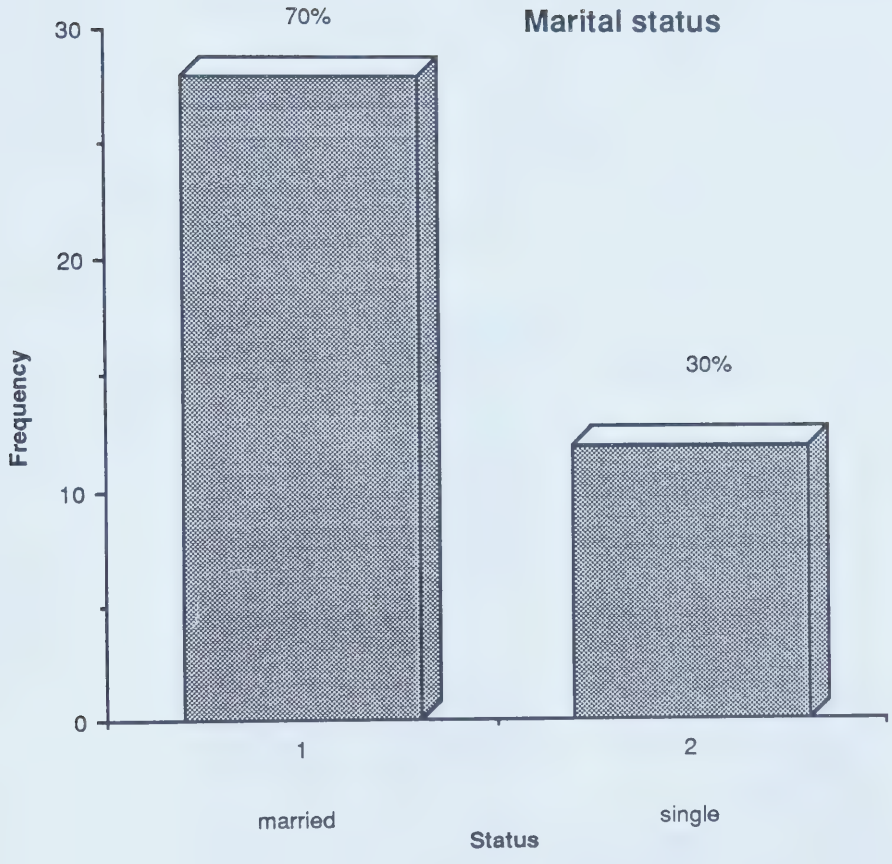

Marital status
70%
30%
30
20
10
0
Frequency
1
2
married
single
Status

Figure 7

Experience

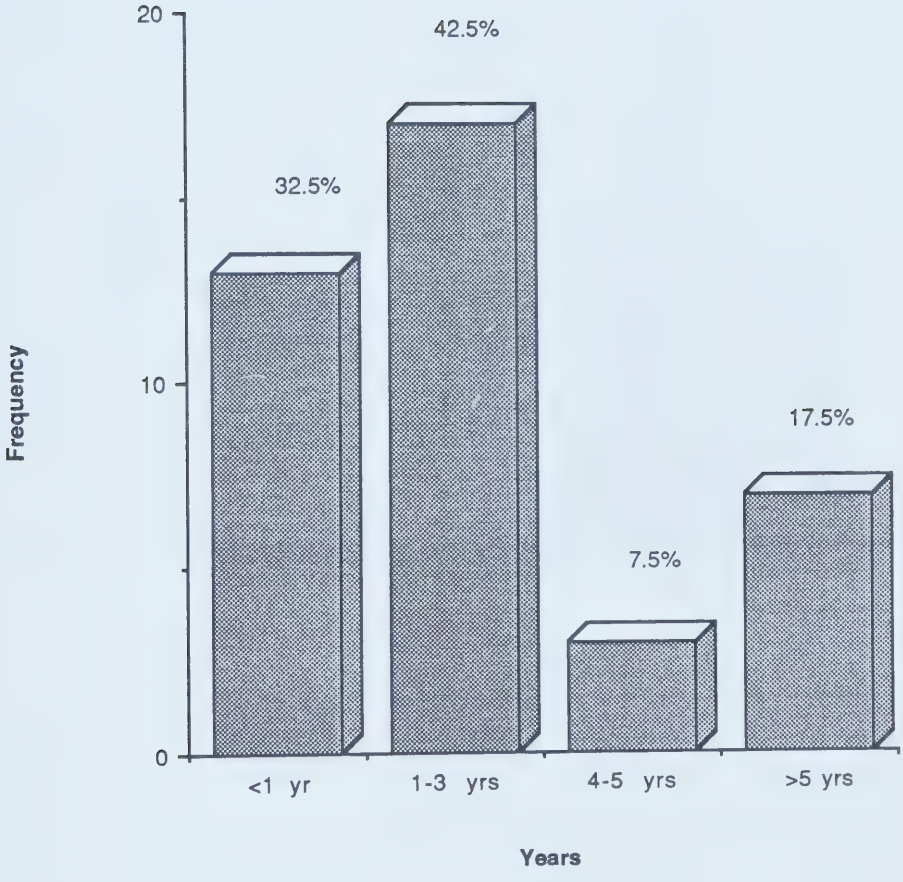
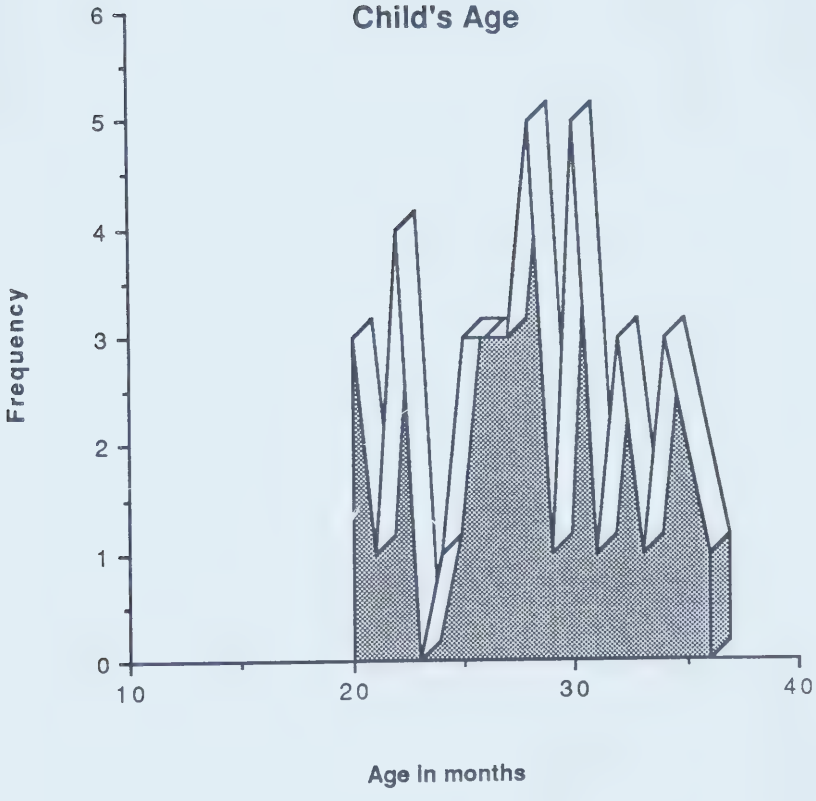


Figure 8



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